

CHILDREN'S USE AND UNDERSTANDING OF
MODAL EXPRESSIONS

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ABSTRACT

The purpose of the study was to examine children's use and understanding of modal expressions during middle childhood. The assumptions on which the work was based are as follows. First that any analysis of the developing modal system must be based on an adequate conception of the developmental endpoint viz. an adequate theoretical account of the adult English modal system. Secondly it is of value in studying children's language development to study both their spontaneous usage as well as their understanding of the same domain. Data derived from both sources can be integrated into a broad conception of this aspect of children's linguistic competence.

The relevant philosophical, psychological, linguistic and developmental psycholinguistic literature on the area of modality is briefly reviewed. This allows us to establish central issues and to assess which questions seem appropriate to research. A working model of English modality is presented, which is based on the work of F.R. Palmer (1979), but contains the insights of other researchers such as Leech (1969), Perkins (1980) and Haegeman (1980). It is intended to give us an instrument by which we may usefully analyse our spontaneous and experimental data. Three types of modality - epistemic, discourse-oriented (deontic) and dynamic - are established. As well as 'possibility' and 'necessity', 'futurity' (prediction) is presented as a third degree of modality. Auxiliary and non-auxiliary expressions of each type and degree are presented.

Four ^{observational} case-studies (2 five year olds and 2 seven year olds) are described: the data are approached both qualitatively and quantitatively. No developmental effect is identified. There follows an analysis of five experimental tasks, carried out with 5, 6, 7, 9 and 11 year olds. The first study involved children transforming simple active declarative sentences into interrogatives, negated, and tense sequence forms respectively. In the second task children were asked to judge and correct deviant sentences, in which there was a redundant modal or quasi-modal verb. The third task required children to give acceptable paraphrases for modal verbs; in the fourth task children were to judge pairs of sentences containing different modal expressions as synonymous or nonsynonymous. The fifth task required children to make judgements about the strength of actuality implication and the deontic source of modals. It was found that, apart from the first, rather easier task, it was only at about the age of nine years that the children were proficient at these epilinguistic skills, and gave linguistic justifications for their judgements. Before this age children were likely to give pragmatic justifications. It is suggested that these skills may be related to the development of literacy. The case study children showed the predicted developmental effect in the performance on these tasks. It is suggested that research to establish the connexions between linguistic and conceptual modalities may now be pursued.



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I declare that this thesis is my own unaided work.

Carol Ann Macdonald

9th June, 1983.

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CHAPTER ONE: INTRODUCTION

When I was a little girl I could go "geek-geek"
like that. But now I can go "This is a chair".
(child 2,10 years cited Clark
and Clark, 1977, p. 275)

I wouldn't have told you to have a holiday with
me if I didn't like you, would I?
(Janet 5,5 years)

'I'm supposed to shut the door' - that suggests she
should do it but it doesn't suggest that she does.
(child 9 years, on language task)

The first quotation shows a young child's rather precocious understanding of his developing linguistic abilities - expressed by could and can. The next utterance is one by a slightly older child to her friend who is momentarily uncertain of the speaker's affections. It shows a developing understanding of the past (conditional) form would: this is a complex use, where the 'unreal' meaning is cancelled by the negatives - meaning I do like you. The third is a protocol from a language task (reported in Chapter Six) which attempts to tap children's understanding of particular forms. The child is able to articulate that for be supposed to, an obligation exists, but it may not be fulfilled.

What do these three seemingly disparate quotations have in common? What they show is evidence of children's maturing competence with aspects of the English verb system - with modal expressions. These are words such as can, could, will, would, may, might which have a number of different functions. These would include a social function, e.g. Can I have cornflakes for my breakfast today? This is a request; other social functions include making suggestions and offers, imposing obligations etc. These words may also have more cognitive, reasoning functions, e.g. Dad's car is parked outside so he must be back from work early today. Other functions here would include making a qualified statement that something may (possibly) be the case.

There is a long tradition of linguistic studies of modality, and more recently there seems to be renewed interest in the subject, as for example in the work by Palmer (1965, 1974, 1979), Leech (1969, 1971) and Perkins (1980). It has been recognised that -

"There is perhaps no area of English grammar that is both more important and more difficult than the system of modals"(Palmer, 1979, preface).

It is one of the functions of the present work to show the intrinsic importance of such work.

There has also been some recent work on the developmental expression of modality, by psycholinguists. This may be following the predictable pattern of investigating what is thought to be of importance in current linguistic theory, but it may equally well be a natural function of a growing discipline needing new areas to chart. Contributions have been made in this area by Shields (1972), Wells (1979) and Perkins (ibid) and others, but to date researchers have not used linguistic insights to the full in their analysis.

A perennial interest of the present author has been the nature of the developmental relation between language and cognition. My initial interest in the area of modality lay in establishing the nature of the relationship between linguistic and cognitive concepts of possibility and necessity, concepts which lie at the heart of the modal system. However, as it turned out the complexity of the developing linguistic modal system was sufficient to occupy the full duration of the research. It is hoped that a thorough linguistic understanding may help towards the formulation of penetrating questions as to the language - cognition relations in this domain.

The assumptions on which the present work was based are as follows:

- (i) Any analysis of the developing modal system must be based on an adequate conception of the developmental endpoint: by this I refer to an adequate theoretical account of the adult English modal system.
- (ii) It is of value in studying children's language development to study both their spontaneous usage and their understanding of the same domain. Data derived from both sources can be integrated into a broad conception of this aspect of children's linguistic competence.

In the writing which follows, when referring to an unspecified child I have used he as the unmarked term to refer to either a boy or a girl.

In referring to other research I cite references anew in each chapter. For example, I refer to Palmer (1979) and Perkins (1980) with dates again in the following three chapters.

A final convention of a different kind is adopted whereby, following Palmer (1974, 1979) I use small capitals to indicate lexical items (lexemes) and underline forms¹.

A brief overview is given of the remaining chapters of the thesis: in Chapter Two the relevant philosophical, psychological, linguistic and developmental psycholinguistic literature on the area of modality is briefly reviewed. This allows us to establish central issues and to assess which questions seem appropriate to research.

Chapter Three outlines a working model of English modality which is based on the work of Palmer (1979) but contains the insights of other researchers as well. It is intended to give us an instrument by which we usefully analyse the spontaneous and experimental data. After this, in Chapter Four, the description of case-studies on two 5 year olds and two 7 year olds follows: the data are approached both qualitatively and quantitatively.

The first two experimental studies are described in Chapter Five - these are Construction-Changing and Acceptability Tasks. The first is similar to a study by Diana Major (1974), the second is in the recent tradition of asking children to make judgements about deviance - this time when a syntactic rule involving modals is broken. All the experimental work is carried out with children of 5, 6, 7, 9 and 11 years of age. Chapter Six is concerned with three semantically-oriented tasks: these are Paraphrase, Synonymy and Actuality Tasks. The studies involve skills which do not seem to be much researched in any other semantic domain.

The final chapter is concerned with the discussion of general issues which are raised through the course of the previous chapters.

We turn now to the literature review.

CHAPTER TWO: THE STRUCTURE AND FUNCTIONS OF LINGUISTIC AND CONCEPTUAL MODALITIES

2.1 Introduction

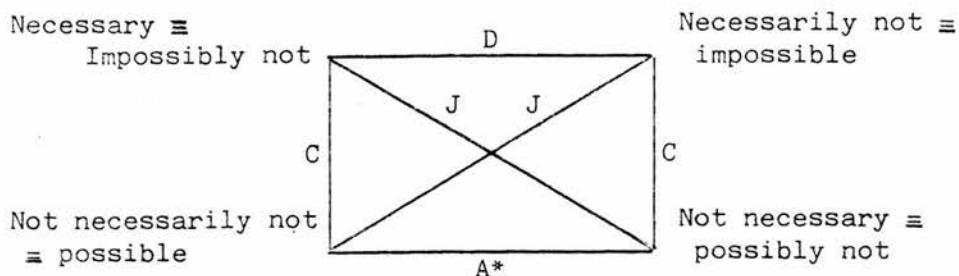
"It is only when the different perspectives of philosophy and philosophical logic, semantics and syntax, pragmatics and social interaction, child language acquisition and developmental psychology are all brought into focus at the same time that one begins to feel that one has grasped something like an understanding of what modality must actually be" (Perkins, 1980, p. 271).

Perkin's concern is slightly different from mine in this chapter, which is to establish how various areas of study can help in understanding the developing use of modal expressions by children. Nevertheless, the point is valid that different perspectives are required in order to come to some understanding of modality.

We shall take a lightning tour of some of the better-trodden philosophical routes, then take a side road towards the longstanding attraction of genetic epistemology. After this, we shall make our way through the established sites of linguistic theories, and short of the guide losing her map, we should arrive at the edge of an escarpment from where we will be able to take a broad and clear view of developmental psycholinguistic work on modality.

2.2 Some philosophical approaches to modality

The study of modality stretches back to Aristotle¹, who distinguished the two modal operators of necessity (symbolised \Box) and possibility (\Diamond). At the predicate level these operators serve to characterise what are called modes of attribution: two things are simply related (pure attribution), are necessarily related (modes of necessity) or may be related (modes of possibility). Together with their negation, these form two logical squares, which I have collapsed together at Figure 2.2.1 to show the logical equivalence between possibility and necessity.



*)These relations, not directly relevant to the discussion are A-subcontrary; C-subordinate; D-contrary; J-contradictory.

Figure 2.2.1 Logical square of possibility and necessity

In employing the modal terms possibility, necessity, contingency and impossibility, and considering their bearing on the truth of propositions, we are concerned with alethic modality. (The term alethic is derived from the Greek word meaning "true".) What are traditionally described as necessary truths may also be referred to as alethically necessary propositions. More recently two other kinds of necessity and possibility have been recognised, and formalised in different ways: epistemic and deontic. The connexion between these three modalities, as well as existential modality, was pointed out by von Wright (1951a), and a comparison between the terms of these modal categories can be seen in the following table (2.2.1).

<u>Alethic</u>	<u>Epistemic</u>	<u>Deontic</u>	<u>Existential</u>
necessary	verified	obligatory	universal
possible		permitted	existing
contingent	undecided ²	indifferent	
impossible	falsified	forbidden	empty

Table 2.2.1 Terms of four modal categories (von Wright, 1951a)

We have already referred to the alethic modes or modes of truth. Alethic modality has little place in ordinary language, although MUST and IT IS NECESSARILY THE CASE THAT may, for example, be used to indicate alethic necessity (I do not identify this category in my own data but cf epistemic MUST). The epistemic modes are the modes of knowing, and epistemic logic deals with the logical structure of statements which assert or imply that a particular proposition or set of propositions is known or believed. Philosophers would be concerned

to establish the conditions under which it is appropriate to use the words know and believe, and other words described as expressing 'propositional' attitudes, eg. doubt, think, imagine. It is generally agreed that "X knows that p" implies that "X believes that p" (i.e. that X takes p to be true) (Lyons³, 1977, p. 793-4).

Epistemic modality in language is nearly always what Lyons (ibid. p. 797) calls 'subjective' in that it relates to an inference made by the speaker, rather than to objective verifiability. (Objective epistemic necessity is for example very close to alethic necessity.) So linguistic epistemic necessity indicated by MUST as in (1) You must find it a change being back in Edinburgh should be paraphrased by something like From what I know the only possible conclusion I can draw is... (Palmer, 1979, p. 3).

Von Wright (1951b) was the first to apply techniques of logic to the analysis of normative concepts, and he named this logic of norms 'deontic' logic (from the Greek 'deon': "what is binding"), identifying the operators of 'obligation' (O) and 'permission' (P). He later (1963) came to realise that a deontic logic required both a logic of action (to which we return) and a logic of change.

There are some clear differences between alethic and epistemic necessity, and deontic necessity. Logical and epistemic modality have to do with the truth of propositions, whereas deontic modality is concerned with the necessity or possibility of acts performed by morally responsible agents. Secondly, deontic modality typically derives from some source or cause: it may be a person or institution, a body of principles, or else some inner compulsion (Lyons, ibid., p. 823-4).

Von Wright (1963) recognised that the deontic sentences of ordinary language exhibit a characteristic ambiguity, in that tokens of the same sentence are sometimes used to enunciate a prescription, sometimes to express a proposition to an effect that there is a prescription. (We return to this point again in the following two chapters.) However, Palmer (ibid.) would have it that we should take deontic modals to be typically performative in the sense of Austin (1962, p. 4-7); we take up the significance of speech act theory below.

Dynamic modality, which has also been recognised and developed by von Wright (1951b, 1963), is concerned with ability and disposition and relates to a logic of action: can do. An act requires an agent, who has the ability to carry out an act, on a logically possible

occasion, e.g. a person being able to open a closed window. The relationship between deontic and dynamic modalities can be seen in the principle 'Ought to entails can': that something is the content of a prescription entails that the subject of the prescription can do this thing (other things being equal) (1963, p. 109).

The existential modes or modes of existence entail quantificational logic. It is possible to organise two isomorphic logical squares to include a "system" of the necessary and the universal, and a system of the possible and the existential (see Le Bonniec, *ibid*, p. 31). This mode is more concerned in ordinary language with some, any, all than the other expressions of modality, but Palmer (*ibid*, p.3) points out that it is nevertheless of interest: CAN is used in an existential sense to mean some, e.g. (2) Roses can be red.

Alethic and epistemic logic lend themselves to formalisation in terms of 'possible worlds', a concept derived originally from Leibniz (Perkins, 1980) who proposed that a proposition can be said to be true in one particular (real or imagined) world, and false in another. Possible worlds include our present actual world, our world existing at other points in time as well as non-actual worlds existing in "conceptual" or "logical" space (Bradley and Swartz, 1979). In discussing notions like possibility or necessity we have to consider what happens in states of affairs different from the actual one. Construed in the terms of model-theoretic semantics we might say that "whatever is possible is true in some alternative world and whatever is necessary must be true in all the alternative worlds" (Hintikka, 1969, p. 72). A necessarily true proposition has its truth guaranteed by the meaning of the sentence which expresses it. Our knowledge or belief that it is true is non-empirical, which means that it is not grounded in experience. However, knowing what a proposition means implies knowing under which conditions (in which possible worlds) it is true - here we refer to epistemic modality (Lyons, *ibid*, p. 787, 793). The interpretation of the alternativeness relation in epistemic logic is that $W(\text{orld})_2$ is alternative to W_1 if it is a world in which whatever is known in W_1 is true.

The alternativeness relation for deontic logic has been formulated as follows: a world W_2 will be deontically alternative to W_1 if in W_2 all obligations holding in W_1 are fulfilled. But Kenny (1978) has shown that there is difficulty in finding an alternativeness relation

for human abilities, i.e. a kind of dynamic modality: he posits a possible intuitive account of the alternativeness relation for a logic of ability - W2 is alternative to W1 if in W2 all abilities present in W1 have been exercised. However, it is the mark of a "full-blooded" ability to be able not to do the same thing, and there is something wrong with the idea of a world in which all one's abilities have actually been exercised. Kenny concludes that "if we regard possible world semantics as making explicit what is involved in being a possibility, we must say that ability is not any kind of possibility"⁴ (p. 226). He does not find this conclusion surprising since he sees 'ability' as a complex concept where the theories of modality and activity intersect. However, it does seem to me, that some notion of possibility must be implicated in the discussion of ability.

One major contribution from the philosophy of language⁵ towards understanding an aspect of the meaning or characterisation of modality has come from speech-act theory originally constructed by Austin (ibid). It has been more recently developed by Searle (1969, 1979).

Initially, Austin started by drawing a distinction between constative and performative utterances. Constative utterances are statements whose propositions have the property of being either true or false. Performatives (utterances) are used to do something, and have no truth value, e.g. (3) I advise you to stop telling lies. He drew a further distinction within performative utterances between primary performatives, e.g. (4) I'll be there on time, and explicit performatives, e.g. (5) I promise to be there on time.

Austin came to realise that saying something is so is it itself a kind of doing, therefore constatives are a kind of performative (and they too may be primary or explicit). He drew a three-fold distinction between the following kinds of acts:

- (a) a locutionary act, which is an act of saying - the production of a meaningful utterance;
- (b) an illocutionary act, performed in saying something, e.g. making a statement or promise;
- (c) a perlocutionary act, performed by means of saying something, e.g. persuading someone to do something.

There is no one-to-one correspondence between grammatical structure, in particular, and illocutionary force.

There are various felicity conditions which an illocutionary act

must fulfil if it is to be successful and non-defective. The felicity conditions are different for different kinds of speech-acts, but there are three main types:

1. Preparatory condition: the person performing the act must have the right to do so.
2. Sincerity condition: if the person performing the act does so without the appropriate beliefs or feeling he will be guilty of abuse.
3. Essential condition: the person performing the act is committed by the illocutionary force of his utterance to certain beliefs or intentions. For example, in making a statement we commit ourselves to the truth of the proposition expressed by the sentence uttered in making the statement.

For example, the felicity conditions for the act of promising are as following (from Searle, 1969):

1. Preparatory condition: S(peaker) is able to perform A(ct)
H(earer) wants S to perform A
2. Sincerity condition: S intends to do A
3. Essential condition: Counts as the undertaking by S of an obligation to do A.

There is also :

4. Propositional Content Condition: S predicates a future act
A of S.

Over and above the felicity conditions illocutionary acts are governed and determined by a general condition of meaningfulness. In making a promise for example, the speaker assumes that the semantic rules are such that the utterance counts as the undertaking of an obligation.

One point raised by Austin's theory of speech-acts is whether there is an upper or lower limit on the number of illocutionary acts that needs to be recognised. Searle (1979) feels that the difference in essential conditions forms the best basis for a taxonomy: for example, the point or purpose of requests is the same as commands - both are attempts to get the hearer to do something. Searle (1979) presents a list of five categories of illocutionary acts, as follows:

- (i) Assertives: the point of members of this class is to commit the speaker (in varying degrees) to something being the case, to the truth of the expressed proposition. The direction of fit

(how the content is supposed to relate to the world) is words to the world. The psychological state expressed is belief.

- (ii) Directives: the point of these consists in the fact that they are attempts by the speaker to get the hearer to do something. The direction of fit is world-to-words and the sincerity condition is want.
- (iii) Commissives: the point of these is to commit the speaker to some future course of action. The direction of fit is world-to-words and the sincerity condition is intention, e.g. promise.
- (iv) Expressives: the illocutionary point of these is to express the psychological state specified in the sincerity condition about the state of affairs specified in the propositional content. (There is no direction of fit), e.g. (6) I apologise for standing on your foot.
- (v) Declaratives: these were the paradigm cases in the earliest discussion of performatives in the literature: the successful performance of one of the members brings about the correspondence between the propositional content and reality, "saying so makes it so". Examples here are (7) I resign, (8) You're fired.

In very general terms we might expect epistemic expressions, and possibly dynamic expressions, to be found under the category of assertives. Deontic expressions would be a sub-class of directives and commissives. These latter are discourse-oriented⁶ in that they explicitly mention the relationship of the speaker and hearer.

The simplest cases of meaning are those in which the speaker utters a sentence and means exactly and literally what he says. However, there are also cases where the speaker may utter a sentence and mean what he says and also mean another illocution with a different propositional content: these are indirect speech-acts. For example (9) Can you reach the salt? which may be meant not merely as a question, but as a request to pass the salt. In directives, politeness is the chief motivation for indirectness (since it is awkward to issue flat imperatives or explicit performatives, e.g. (10) Pass the salt or (11) I order you to pass the salt, respectively).

In an analysis of indirect directives Searle (1979) shows that there are three types of sentences:

- (I) Those having to do with felicity conditions on the performance of a directive illocutinary act
 - (a) preparatory conditions, concerning H's ability to perform A, e.g. (12) Could you be a little more quiet?
 - (b) sincerity condition: S wants H to do A, e.g. (13) I would like you to go now
 - (c) propositional content condition: concerning H's doing A, e.g. (14) Would you kindly get off my foot?
- (II) Those having to do with reasons for doing the act, e.g. (15) Would you mind not making so much noise?
- (III) Those embedding one element within another, e.g. (16) Might I ask you to stop working now?

A study of the examples of sentences used to perform indirect commissives (especially offers and promises) shows very much the same patterns as that with directives. It is not accidental that all examples given have some modal expression in them: there seems to be a close connection between modality and politeness and Perkins (1980) has attempted to show how the entire range of modal devices in English may be used to express politeness. English is deficient in pronouns and honorific particles used in other languages (for example U and jy in Afrikaans) and the modality system seems to be used instead. Why should this be so? Lyons (ibid) points out that the sincerity conditions that are asserted or questioned in these acts have to do with the knowledge, belief, will or abilities of the participants - and these are the factors involved in epistemic and deontic modalities. It is for the same reason that "tags" that may be attached to imperative sentences in English contain a modal verb, e.g. (17) Open your books, will you? (18) Stop that awful noise, can't you?

Perkins goes even further - he has this to say (p. 199):

"We have seen that modality can be generally construed as a semantic system which enables a speaker to qualify his commitment to the truth of the proposition or to the actuality

or actualisation of an event. In one sense it constitutes a means for eschewing responsibility for what one is saying by involving some relevant circumstance or piece of evidence which is independent of one's personal control. In short, if one does not want to impose one's views or authority upon one's addressee, if one wishes to make ... the actualisation of the event a matter for the addressee to decide then the system of modality is eminently suited to do this."

Perkins also notes that the more modal expressions that are included, the more difficult it is to construe the sentence as a directive, as for example in (19) I would imagine it may be necessary for you to stop writing, and that the number of modal expressions it includes is also an index of the indirectness of a directive. We have here an interesting marriage of observations about modality and speech acts in the explanation of politeness.

2.3 Genetic approaches to possibility and necessity

The notions of possibility and necessity are of considerable interest in relation to children's thinking as well as their language. According to Donaldson (1976, p. 278) "consideration of possibilities is at the root of inferential thinking". She has also observed that the quite young child has some intuition of possible states of affairs in the sense that he is aware, at least fleetingly, of uncertainty about particular external happenings and tries to resolve this uncertainty, as swiftly as possible. A much later notion is that of "the possible", the attitude that entertains a possibility, represented and attended to as a mental event.

For Piaget (see particularly Inhelder and Piaget 1958) the

comprehension of possibility and necessity is the result of a long evolution, culminating in the achievements of the formal operational period. The preoperational child (2-7 years) is more likely to explain situations in terms of the characteristics of their configurations at a given moment than in terms of the changes leading from one situation to another. Cognition is still almost completely bound to reality, but the corrections and adjustments inherent in the child's actions show that "potential transformations" or "possibility" are beginning to appear.

Compared to preoperational or intuitive thought concrete operational thought (7-11 years) is characterised by the simple extension of the actual, or reality, in the direction of the potential, or possible. For example, to classify a set of objects means that one constructs a set of class inclusions such that at a later point new objects can be included in a systematic relationship with those already classified. New class inclusions are thus continually possible, but Piaget is anxious that we do not equate these "possibilities" with a set of hypotheses. Any hypotheses that the child does formulate are no more than outline plans for possible actions.

The most distinctive feature of formal operational thought (from 11 years upwards and only in specific situations) is that it is hypothetico-deductive: this type of thinking proceeds from what is possible to what is empirically real. The deduction refers to hypothetical statements rather than real perceptions. Instead of deriving a theory from empirical data as with concrete inferences, formal thought begins with the postulation that certain relations are "necessary": deductions derived from true hypotheses are necessarily true.

For our purposes - although Piaget is at pains to stress the acquisition of "real" possibility only at the hypothetico-deductive level - we would be interested in the early forms of "possibility", what he calls "possibility-as-an-extension-of-the-actual-situation". This would probably be the psychological analogue of the linguistic "circumstantial" possibility, i.e. "possible for" (But see also Leech's distinction between practical and theoretical possibility in the following section).

Piaget would hold that the operation of thought could be adequately described by propositional logic (or indeed that the child

acquires such a logic). However, two-valued logic has been seen to be inadequate to describe natural thought⁷ insofar as for example, the operator (if..then) is a source of paradox, since it permits inferring the truth of an argument from the falseness of the antecedent. (In fact $p \supset q$ is false if and only if p is true and q is false.)

Since implication is of special interest - because we could take (hypothetico-deductive) thought to be concerned with arriving at a deduction based on a true or hypothetical premiss - we need an alternative account of it for a psychological theory. Le Bonniec (1980, p. 58) has proposed the alternative schema:

Nonpossibility of $X \Rightarrow$ Necessity of non- X .

She argues that modal logic appears capable of furnishing a more "economical and satisfying" model of thought than classical logic. On this account, the subjective feeling of logical necessity could arise from the simultaneous consideration of observable cases of possibility and impossibility. If the subject infers the necessity of p from the impossibility of non- p , he is reasoning within the Aristotelian logical squares of modalities (see Figure 2.2.1 above).

Le Bonniec has carried out a series of studies with French children from 3 to 12 years and posits the progressive emergence of three modal systems and their organisation into structures. The criterion for judging the integration of the first system - that of pragmatic modalities - is the child's understanding of the possibility of doing = something may be done or made because it is do-able or makable without there being an obligation to do it. This system is constituted at the age of about 7 years. The next stage involves the capacity to consider eventualities (possible events). The child comes to be able to imagine nonpresent objects or the properties of non-accessible objects, conscious of the fact that this involves properties for which certain information is lacking. To know that one does not know is to be able to maintain uncertainty throughout the reasoning process in such a way as to be able to compare the case where information is lacking to the case where information is complete. From the age of 8 years children can organise their information content into a three-valued epistemic modal system (i.e. I know that p (verified): I know that $\neg p$ (falsified): I don't know whether p or not (undecided)).

Remaining in undecidability is the condition for achieving the

system of alethic modalities: this is a reflection of the feeling that a decision is lacking. When something undecidable is taken as an hypothesis, its status changes - it becomes a possibility. The necessarily true is constructed by opposition to the undecidable. The capacity to reason by constructing hypotheses seems to be concomitant with the capacity for organising the products of the thought process-operations into a system of alethic modalities involving the following truth values: necessarily true (or necessarily false); not necessarily true (i.e. undecidable); possible (not necessarily true, taken as an hypothesis).

There are several remarks to be made about Le Bonniec's work in relation to general experimental principles, data on early language performance, and my own research. Le Bonniec suggests that up until the age of about six years, children assume that if an object can be made, it must be made. This seems to be a surprising, perhaps counter-intuitive finding, and I would suggest that it was an artefact of the children's reading of the dynamics of the experimental situation. Le Bonniec does not say, for instance whether the dolls in question were said to have any choice. Her suggestion that English children might understand the difference between prohibited and unmakable before French children (due to their only having the single verb pouvoir) is obviously testable. In general we would want to know whether deontic and dynamic necessity are poorly differentiated initially.

The notion of pragmatic modalities, describing the conditions of action, have no precise analogues in logical or linguistic systems, i.e. von Wright's logic of action (c.f. 2.2 above) or the linguistic dynamic modality, i.e. 'possible for'. Le Bonniec seems to be suggesting a developmental progression of the interrelated system of modalities. However, pragmatic and epistemic modalities seem to emerge at roughly the same time: furthermore, she suggests that the notion of eventualities (i.e. possible events) arising from the pragmatic modality would provide the point of attachment for the epistemic system (or structure). The linguistic parallel to this would be intriguing - what is the connection between dynamic and epistemic modality where the former is the modality of events, the latter of propositions? They may not be as discrete in use as they are in theory.

One final point is that Le Bonniec does not report protocols to

show the connexions between the linguistic justifications the children gave and the underlying conceptual system. This would be an interesting connection to try to establish. A related but slightly different issue would be to try to establish the correlations between the emergence of the spontaneous uses of linguistic modality and related cognitive concepts: for example, one might ask when children first use the expression "I know" or "I don't know" and how this relates to the epistemic cognitive structure which includes the ability to discern that one doesn't know whether p or not p. Such questions are, however, beyond the scope of the present study.

2.4 Linguistic approaches to modality

There is an enormous body of literature in this area (any comprehensive bibliography would run into hundreds of studies) and I propose to deal only with a small number of studies which I consider as important, both intrinsically and in relation to understanding the developmental studies in 2.5 below.

Most linguistic studies have addressed themselves to the 'classic' modal auxiliaries, i.e. can/could⁸, may/might, will/would, shall/should, must, ought to, also dare and need, and perhaps also to the selected 'catenatives', 'quasi-auxiliaries' or 'semi-modals' have to, be able to, had better, be going to, be supposed to, etc. (These are semantically very close to must, can, etc.). But a much broader concept of modality is possible. We could take modality as "essentially the qualification of the categorical and absolute" (Perkins, *ibid*, p. 28). As Perkins points out, instead of asserting absolutely that something is the case, one may indicate that the truth of what one has to say is by no means assured; or instead of issuing a categorical directive, one can indicate that one is not imposing an obligation but merely asking for one's wishes to be taken into account. Perkins' notion of qualification relative to some conditional framework leads him to attempt to account for a broader range of modal "phenomena" than generally accounted for

or even considered: however, it is rare amongst linguistic studies, and it is perhaps useful to approach the main body of the literature by means of a narrow focus, that of the formal criteria for the modal auxiliaries.

Modal auxiliaries are the only modal expressions which constitute a reasonably well-defined syntactic class. The defining criteria, noted very widely, are summarised by Palmer (1974, 1979), Perkins (ibid) and Major (1974): the classic modal auxiliaries (listed above) share four properties with the 'primary' auxiliaries BE, HAVE and DO.

These are:

- (i) Negation: in which the negative particle not immediately follows or contracts with the auxiliary, e.g. can't, don't;
- (ii) Inversion: with the subjects, in questions and formal conditional uses, e.g. (20) Must I go?, (21) Should you wish to leave...
- (iii) 'Code': echo-substitute functions as in tag questions, short answers and conjunctions with and so, e.g. (22) I can write. So can I.
- (iv) 'Emphatic affirmation': the main stress of the sentence falls on the auxiliary to signal insistence on the 'truth' of the statement⁹, e.g. (23) She must be there by now.

In expressing similar functions all main verbs would require the support of 'dummy' DO. Huddleston (1976) refers to these as the 'NICE' properties.

As a class apart from other auxiliaries, modals have the further defining criteria:

- (v) No -s form in the third person singular cf *might's, *could's;
- (vi) Absence of non-finite forms: no infinitive, past or present participle cf *to can, *mighting;
- (vii) No co-occurrence¹⁰ cf *She might must go;
- (viii) No occurrence as the first element in the imperative cf *Can go!;
- (ix) Always the first element of the verb phrase cf You might be going
*You be might going.

The classic modals fit all these criteria, apart from the fact that must¹¹ and ought to have no past forms, and ought requires to.

Semantic¹² studies include those by Joos (1964), Ehrman (1966), Leech (1969, 1971), Palmer (ibid) and Perkins (ibid).

Palmer (ibid, p.11) has observed that because there is a fairly

clearly defined set of modals in English, it is natural to try and arrange them in some semantic framework. One way to do this is to place them in a multi-dimensional matrix with each dimension indicating some set of semantic 'features': Joos (ibid) has attempted one such matrix analysis. For Joos, the eight classical modals could be arranged in a three-dimensional matrix. The contrasts he draws are casual/stable; adequate/contingent; assurance/potentiality, which then yields readings such as the following:

WILL = casual adequate assurance;

NEED = stable contingent potentiality.

There are three possible criticisms of such an analysis¹³ (Palmer, ibid, p. 12). First, there is no reason to believe that the modals fit into such a matrix, even if they are a distinct set. (The parallel from phonology is unduly seductive.) Secondly, the categories are based on idiosyncratic judgements, for example, adequate/contingent which solely differentiates WILL and SHALL, where 'adequate' modals derive their force from completeness in the set of determining factors, where 'contingent' modals get their weakness from some deficiency in the determining factors (Joos, p. 150). Thirdly, the categories are not descriptively adequate insofar as they lack naturalness and bear little relation to judgements that the native speaker seems to make: this has been experimentally verified by Emmerich (1969). As Palmer (ibid, p.12) concludes, "the greatest danger with analyses of this kind is that the investigator can convince himself of the correctness of his solution simply on account of its neatness and simplicity".

In passing, we would mention that Joos made two startling but unsubstantiated claims that it is possible and necessary to investigate: he has this to say (ibid, p. 147):

"When English is learned natively the meanings of those eight modals are learned so extremely early - necessarily before the child is ready for kindergarten - that as an adult one has left them buried deep in the subconscious where they are inaccessible to rational scrutiny by anyone but a ruthless professional analyst of languages..."

Madeline Ehrman's (1966) work, very closely tied to corpus observation, was in reaction to "symmetrical or exceptionless semantic arrangements" such as that of Joos: she did not specifically set out to find an orderly or symmetrical system. She comes to the conclusion that classic modals each have a basic meaning - "the most general

meaning", "the meaning that applies to all its occurrences". There are also, for nearly all the modals, overtones, which are "subsidiary meanings" derived from the basic meaning but which "add something of their own", being conditioned by elements of the context which cannot be identified (p. 10). For example, the basic meaning of WILL is that "the occurrence of the predication is guaranteed", either in a future or timeless function context, with one possible overtone that the subject's volition has something to do with the guarantee and another that the predication is a natural consequence or concomitant of another factor or predication.

It is Leech's (1969) view that to study the "overtones" without taking notice of the underlying relationships is "rather like investigating the anatomy of the human body while overlooking the fact that it has a bone structure" (p. 202). Leech objects to the vagueness of the basic meanings (a general fault of unitary approaches) and exemplifies this in his analysis of Ehrman's definition of WILL:

- (a) must and have to also guarantee the occurrence of the predication¹⁴;
- (b) will used in offers does not guarantee the occurrence of the predication;
- (c) will is odd in some contexts where the occurrence of the predication is truly guaranteed, e.g. (24) The sun rises every morning is more natural than (25) The sun will rise every morning.

We will, however, return to a core-meaning approach (viz. Perkins (ibid)) which obviates Leech's criticism about not showing underlying relationships.

I would take exception to Ehrman's statement that overtones are conditioned by elements of the context which cannot be identified. Although, for instance, she does note (p. 39) that the overtone of volition is especially clear with the first person singular subject, she does not see fit to identify this as a "context". One wonders what would qualify for a "context" if this does not. Also, it does appear to be the case, for example, that conventionalised requests, offers, etc., by their very nature have particular contexts (e.g., Shall we....?; Could I....?, etc.).

Leech's (1969) approach is very different from Ehrman's - that of componential analysis, with a number of semantic features (which do not form a matrix nor systematically relate), involving seven systems. These are, in brief, as follows:

- (i) Causation: causes; is caused by.
- (ii) Actuality: actual, real; nonactual, unreal, hypothetical.
- (iii) Constraint: weak constraint (e.g. permission);
strong constraint (e.g. obligation).
- (iv) Authority: has permission/is obliged to.
- (v) Volition: wishes; is wished by.
- (vi) Ability: is able to.
- (vii) Probability: probably; improbable.

These features are involved to account for how the senses of six modal auxiliaries resemble and contrast with another: he summarises the relationships visually as follows (p. 204):

'Permission'	MAY CAN	MUST HAVE TO	'Obligation'
'Possibility'	MAY CAN	MUST HAVE TO	'(Logical) Necessity'
'Willingness'	WILL SHALL	WILL SHALL	'Insistence'

(This excludes the 'capability' or 'ability' sense of CAN.) Leech conceives of the contrast between the left- and right-hand boxes as that between "inverses". This principle¹⁵ roughly worded is: 'if one term is substituted for the other and the position of negatives is changed, the utterance undergoes no change of meaning' (p. 205). For example: (26) Students are not permitted to earn money in the vacation = (27) Students are obliged not to earn money in the vacation.

It is also claimed (p. 218) that 'possibility' and 'necessity' logically include 'permission' and 'obligation' - that 'permission' is a particular kind of 'possibility' and 'obligation' a particular kind of 'necessity'. For example, (28) I am permitted to smoke implies It is possible for me to smoke¹⁶. 'Ability' also implies 'possibility'.

An interesting distinction is made between 'theoretical' and 'practical' possibility and necessity. The difference between 'possibility' CAN and MAY can be seen in paraphrases with It is possible (examples are from Leech 1971, p. 76):

- (a) Practical¹⁷: (29) The road may be blocked = (30) It is possible that the road is blocked.
- (b) Theoretical: (31) The road can be blocked = (32) It is possible to block the road (for the road to be blocked).

This seems to be another way of describing the more familiar (a) epistemic/(b) non-epistemic (here dynamic) distinction. It is interesting that although the that-complement is associated with epistemic modality, the modality of propositions - it can be regarded as the one making a practical prediction. To state a circumstantial possibility is not to place it in a particular context. While the distinction is clear here, the parallel distinction between must (= 'factual necessity') and have got to (= 'theoretical necessity') is less compelling, as for example (1969, p. 221) in:

- (c) Practical: (33) Someone must be telling lies = (34) It is impossible that everyone is telling the truth.
- (d) Theoretical: (35) Someone has to be telling lies = (36) It is impossible for everyone to be telling the truth.

Once again we have a contrast between (c) epistemic and (d) dynamic, modality, where the latter has a paraphrase Noun Phrase + to + Inf. construction. However, this is not a well-used contrast (and have got to may be used epistemically), and Leech himself admits that "the difference is subtle enough to make intuition uncertain" (1971, p. 222).

Two other valuable insights are worth mentioning. Leech very clearly articulates the distinction between ought and have to/must both in the field of (i) 'obligation' and (ii) 'necessity', for example:

- (i) (37) He must pay for the broken window (... and moreover he will do so, because I say so).
- (38) He ought to pay for the broken window (... but he probably won't) (1971, p. 94).
- (ii) (39) That must be my wife.
- (40) That ought to be my wife (1969, p. 220).

Ought to has the same meaning as must, i.e. of necessity, except that it expresses not confidence, but lack of full confidence in the fulfilment of the happening described by the main verb.

A further contrast between MAY and CAN and between MUST and HAVE TO in the field of obligation and permission is from where the authority is derived. MAY and MUST identify the speaker as the source of authority. Consider:

- (a) (41) You can smoke in here.
- (42) You may smoke in here.

(b) (43) You have to be back in camp by ten.

(44) You must be back in camp by ten (1969, p. 227).

You can smoke (41) expresses the impersonal notion 'you have permission', whereas You may smoke (42) makes it clear that it is the speaker who gives permission. However, I would add that can must increasingly come to be associated with speaker authority in parallel with the rise of Can I? as a request form, although the impersonal sense may of course be present in specific contexts. In (b) above, have to indicates the general idea of obligation, but must identifies the speaker as the person giving the order. By implication I must would indicate self-coercion.

Leech has introduced some useful contrasts in his work, but it is difficult to tell whether his rather abstruse logical notation has made an equivalent contribution (especially as it is linked with the rest of his semantic system). As Palmer (ibid, p. 14) observes, "presentation of formulae does not in itself solve any of the problems".

For the sake of completeness, brief mention must be made of an attempt to apply speech-act theory specifically to the modals¹⁸, within a generative semantics framework. Boyd and Thorne (1969) treat modal verbs as indicating the 'illocutionary potential' of the sentences in which they occur. For example, the function of will is to indicate the illocutionary potential of the sentence as prediction - (45) He will go to London tomorrow. The corresponding statement is (46) He goes to London tomorrow. The difference between these two sentences is supposed to be reflected in the two different speech acts of stating and predicting. For Palmer (ibid, p. 16) the differences are based on grammatical form, not speech acts per se. (For further discussion of these two types of futurity expression, see Appendix 1.)

There are other unsatisfactory aspects of this analysis. For example, the difference between SHOULD and MUST (paralleling the difference between OUGHT and MUST so clearly articulated by Leech) is simply represented as the feature [imp] for SHOULD, expanded to

imp
nec

¹⁹ for MUST. There seems to be a conceptual confusion here - both forms indicate necessity, but it is a matter of degree. Also, a number of uses of CAN are discounted as not modal, i.e. dynamic neutral possibility and ability ('possible for' and 'be able to'), also the existential use (cf. 2.2. above). No justification is offered for

this; perhaps it is because these uses would have to be drawn under the illocutionary force of 'statement', not being narrowly speaking 'performative'. Palmer urges the need for a thorough explication of the illocutionary force associated with the characteristic use of modals.

F.R. Palmer (1965, 1974, *ibid*) has made a substantial contribution towards understanding the characteristics of the English modals. It is his 1979 model which I use as the basis for my working model in Chapter Three, so we will not examine his work in detail here, but rather, make some general remark about his approach.

There is substantial development of Palmer's thinking through the three models. In the first two (1965 and 1974) Palmer concerns himself with the 'classic' modals, and in the case of the first, he does not appear to have a theoretical superstructure, but confines himself to a careful exposition of the uses of the modals. For example, he identifies six uses of CAN viz,

- (a) Ability e.g. (47) I can read Greek.
- (b) Characteristic e.g. (48) He can tell awful lies.
- (c) Permission e.g. (49) You can come tomorrow.
- (d) Possibility e.g. (50) He can (=may) be hiding.
- (e) Willingness e.g. (51) Can you help me tomorrow?
- (f) Sensation e.g. (52) I can see the moon.

In his 1974 model, Palmer makes a basic distinction between epistemic and non-epistemic modality, which are the modalities of propositions and events respectively. The non-epistemic modals are subclassified as 'subject-oriented' and 'discourse-oriented' with CAN and WILL being subject-oriented and MAY, SHALL and MUST being discourse-oriented.

The subject-oriented modals are supposed to refer to the ability or willingness of the subject (of the sentence) relating to the action specified by the main verb. These modals alone have past tense forms for past time (e.g. (53) She could be very catty at times). Discourse-oriented refers to the part played by one of the participants in the discourse: the speaker in statements the hearer in questions. The contrast is exemplified as follows (1974, p.100):

- (54) John will come tomorrow.
- (55) John shall come tomorrow.

In (54) it is the subject who agrees to come, while in (55) it is the speaker who guarantees that John will come. (In point of fact (54) is ambiguous between reporting John's volition and a 'neutral' prediction about John. (55) is a very formal undertaking which must surely be rather rare.)

The contrast between epistemic and non-epistemic modality is shown in the following pair of sentences (p. 103):

(56) He couldn't be there yesterday.

(57) He can't have been there yesterday.

In (56) the modal is marked for past tense, and refers to lack of ability in the past time (being subject-oriented). In (57) the full verb is marked for past, and the modal refers to the impossibility of the event in the past (the epistemic use).

In his 1979 model, Palmer alters his position which he feels was "not wholly accurate" (ibid, p. 35). First he observed that some of the non-epistemic modal uses are neither subject-oriented nor discourse-oriented, but simply 'neutral'. For example, we may say that an event is possible without relating the possibility either to the subject or to the speaker, as in (ibid, p. 72):

(58) I know the place: you can get all sorts of things there.

Secondly, some of the modal verbs do not fit wholly into one or other of three kinds, for example CAN is both (59) subject-oriented and (60) neutral, and MUST is both (61) discourse-oriented and (62) neutral. These may be exemplified as follows:

(59) They can't speak a word of English of course (p. 73).

(60) Signs are the only things you can observe (p. 71).

(61) I've been telling Peter ... you must get into permanent jobs (p. 61).

(62) If the ratepayers must be consulted, so too must the tenants (p. 91).

Palmer now suggests that, if we take syntax and semantics carefully into account, we can distinguish three main kinds of modality: he labels these with von Wright's (1951a) terms 'epistemic', 'deontic' (=discourse-oriented) and 'dynamic'. Epistemic modality is, once again the modality of propositions and is exemplified by MAY for possibility and MUST for necessity:

(63) They're all very sort of Kentish, and they may be in Sussex, actually (p. 21).

(64) This must be one of the finest views of the whole processional route (p. 22).

Deontic and dynamic modalities are the modalities of events. Deontic modality is exemplified by MUST for obligation (as in (61)) and MAY for permission: (65) If you want to recall the doctor, you may do so (p. 22). Dynamic modality can be subdivided into (a) 'neutral': CAN in the sense of 'possible-for' (as in (58)), MUST as 'necessary for' (as in (62)); (b) 'subject-oriented': CAN of ability (as in (59)), WILL of volition, e.g. (66) Why don't you go and see if Martin will let you stay? (p. 24). Finally, a third kind of dynamic modality²⁰ is 'circumstantial' dynamic modality - HAVE TO, e.g. (67) I've got to be at London airport at fourish (p. 92).

The 1979 model is text-based, and although the classification is reminiscent of modal logic the constant contact with the data of usage ensures that Palmer's analysis departs from the neat and rigid categorisation systems of works based entirely on introspection (Haegeman, 1982). It is also suggested that Palmer sometimes seems in danger of overcategorising the data: for example (p. 115-6) he suggests five kinds of modal future WILL. Haegeman notes that some of these problems might have been obviated had Palmer provided a clearer definition of such semantic terms as 'pure future'. (Palmer tends to rely on paraphrase rather than formal definitions.)

One of my own general observations about this model is that Palmer has not really followed through the consequences of his new categorisation. For example, as we pointed out above, he now takes MUST to be both discourse-oriented and dynamic, yet he does not allow the same for the related modals SHOULD and OUGHT TO, which he treats as dynamic (although he does allow that "they sometimes have highly deontic characteristics" (p. 69)). Some of his own examples such as the following suggest that the speaker is in fact imposing an obligation (albeit a weak one):

(68) If you can afford to, then you should drop your sights down and buy a flat or a maisonette.

(69) You should read, my dear, more (p. 100).

This could be contrasted with more 'neutral' necessity as in

(70) This should be done before the pollen is ripe.

(71) ... and the young man who should have been in the boxing arena tonight (p. 101).

More specific remarks are made in Chapter Three.

Another recent major work on English modalities is that of Perkins

(ibid, which also appears as Perkins, 1983), who was mentioned at the beginning of the section as having a broad concept of the expressions of modality. His core-meaning approach is more conceptual, a development of Wertheimer's (1972) work on OUGHT.

Perkins is aware of the potential dangers (which we have outlined) of basic-meaning approaches, and he is concerned that the core-meanings which he isolates are not "counter-intuitive" nor "so vague as to deny any sense of explanation" (p.51). He is reacting to the excessive polysemy seen by other workers which he takes as suggesting that the English modal system tends towards "semantic anarchy" (p. 50-1).

For Perkins, the notions of necessity, possibility and contingency are conceptually grounded in the fact that human beings behave as though things might (have been) different from what they are (or were). He reconstrues the notion of things being otherwise in terms of "possible worlds", which enables us to show the underlying relation between such different types of 'modality' as non-actuality, pastness, futurity, etc. The term 'modality' refers to second and third-order entities, i.e. events, processes, states of affairs, and abstract entities such as propositions, respectively. (This distinction between second and third-order entities enables us to differentiate between dynamic and epistemic modalities.) In his conceptualist view then:

"A given event or proposition may be made relative to or maybe qualified by, a particular worldview, state of mind, set of principles, etc. Such conceptual frameworks are often referred to as modalities"(p.12).

and again:

"Each modality represents a particular set of laws or principles to which the truth/actuality of third/second order entities is relativised" (p. 13).

We return to our three familiar kinds of modality - epistemic, dynamic and deontic, and Perkins seems to have particular insights concerning the latter two. For 'dynamic' or 'causal' modalities, the view of causation is "as a disposition of a set of circumstances towards the occurrence of some event"(p.16). He includes boulomaic modality as a type here - where the disposition derives from a conscious human source, as for example, It is hoped/feared/regretted/desired (from Rescher, 1968).

Deontic modalities are defined in terms of two kinds of social

and institutional laws, which have no absolute dividing line:

- (a) laws explicitly laid down by some legal authority or institution (defining rules of behaviour for a social group);
- (b) less formal "laws" relating to social status, according to which one person may be said to have personal authority over another.

Instead of characterising the meanings of the modals by means of periphrasis, Perkins expresses them as variants of the semantic definition, namely, the relation between a system of organised belief K , a set of circumstances C , the truth of a proposition p or the occurrence of an event e , and in the case of the secondary modals (e.g. could, might), a condition Z . He is now able for example to give a unitary definition of CAN which covers its many posited uses (dynamic, deontic and epistemic) as

$K (C \text{ does not preclude } X^{21})$

where

- (i) K = natural/social/rational laws
- (ii) C = empirical circumstances/deontic source/evidence
- (iii) X = an event/the occurrence of e /the truth of p .

In this system CAN and MAY are regarded as contextually determined formal variants which realise the same core meaning (MAY is typically epistemic or formal deontic). The secondary modals are semantically identical to their primary counterparts which have conditioning environments present in the context of utterance (e.g. hypothetical, past, formal, polite, tentative, indirect).

It is not claimed for these semantic structures that they represent some psychological mechanism, but rather that they represent the meaning of the modals which is in evidence in all their uses. Perkins' definitions apply equally well to non-auxiliary modal expressions such as BE POSSIBLE THAT, BE OBLIGED TO, PROBABLY, etc. His consideration of the auxiliary and nonauxiliary systems brings him to conclude (p. 162-7) that the auxiliaries are the least formally explicit of all the modal expressions. All the nonauxiliary expressions incorporate information about one or more of the variables X , C and K . For example, where the modal auxiliaries are unmarked - (72) He may go is deontic or epistemic, where epistemic may be subjective or objective and refer to the present or the future: in contrast modal adverbs may be

(i) Explicitly objective ²², eg. (73) Possibly he will go.

(ii) Explicitly epistemic (unspecified subjective/objective) e.g.

(74) Perhaps he will go.

(iii) May ~~be~~ (a) thematized, e.g. as (73)

(b) interpolated, e.g. (75) He will possibly go.

(c) adjoined, e.g. (76) He will go, possibly.

The lack of markedness of the auxiliary modals is almost certainly bound up with the fact that they are most fully integrated into the structure of the clause (cf the formal criteria at the beginning of the section).

The main import of Perkins' work is to show that it is possible and necessary to consider philosophical and pragmatic factors in the effort to understand the nature of modality. However it is unavoidable that some syntactic considerations should have been overlooked in an attempt to gain a unified view of modality. (Details in Chapter Three should redress the balance.) Perkins has also applied his model to child language data and we will consider this aspect of his work in the following section as well as Chapter Four.

One gains the impression that substantial progress in the understanding of modality has recently been made if one considers the conceptual insights of Perkins with the observations about usage made by Palmer. We do have an adequate framework within which to assess developmental linguistic work in this area.

2.5 Developmental psycholinguistic work on the expression of modality

The substance of this work is approached by considering four main questions: these are -

- (a) What is the apparent order of acquisition of modal expressions, from early childhood to adolescence?
- (b) What is the developmental picture for related notions such as tentativeness, hypotheticalness, and factivity?
- (c) Do we have any adequate explanations for the posited acquisition order at (a)?
- (d) Are there general characteristics of the development of language skills which we might expect to see reflected in children's facility with modal expressions?

Substantive answers to these questions should enable us to posit

a set of questions which the present study was designed to address: these follow at section 2.6 below.

It seems that can't and won't are the earliest modal expressions to appear (along with don't, a primary auxiliary), somewhere around the child's second birthday (Leopold (1949), Klima and Bellugi (1966) Cromer (1968), Bloom (1970), Fletcher (1979)). It seems that these forms are unanalysed wholes²³ since there is no reason to believe that the child analyses the forms as aux + not. When both full and contracted negative auxiliaries appear it would seem reasonable to attribute an adult-like knowledge of the placement of negative particles (Klima and Bellugi, *ibid*). However Maratsos and Kuczaj (1976) show that children even at 3 and 4 years may not treat not and n't alike in declaratives, indicating a need for caution in formulating general rules.

Slightly later forms are can and will (Miller, 1973; Shields, 1974; Wells, 1979) and these forms bear the burden of the expression of modality for a good while in early childhood.

There is some evidence to suggest that, at the very first stage, children may "know" more about the distributional characteristics of modal auxiliaries than their performance would suggest. Abe (Kuczaj and Maratsos' (1975) child) at 2;5, with only can't and don't in his system, seemed to know that modal auxiliaries come before main verbs, that they take de-tensed main verbs after them, and he also had a knowledge of their class membership. In discussing possible reasons why Abe did not use his knowledge in spontaneous speech, Kuczaj and Maratsos (*ibid*) adduce other evidence of preproductive integration of the modal system in Brown's (1973) data. These show that the modal system seems to enter productive use quickly: the use of modal auxiliaries in yes-no questions came within some weeks of the productive use in declarative sentences with the Harvard children.

Fletcher's son Daniel, by 2;2 years had can, can't, will and willn't and shall in his modal auxiliary system. It is critical to note that the functions of these forms were extremely limited at this stage. They were all used either with 1st or 2nd person pronouns: for himself he is either indicating willingness, inability or a request for permission: for the addressee he is simply allowing or prohibiting an action. In other words the modals are "interpersonal and action-oriented" (p. 281).

Fletcher argues against the imposition of the full complexity of the adult framework in categorising very early usage of modal auxiliaries. While accepting this point as generally valid, I do not see any reason why we should not attribute to the child from very early on, the capacity to discriminate say 'ability' can from 'permission' can, with more indirect uses following later. Children are taught very early about the need to ask permission (especially from older siblings). Wells (ibid) put the acquisition of the ability sense about three months ahead of the permission sense (30 and 33 months by his criterion of 50% of his sample showing instances). The first six meanings which Wells identifies are as follows: can ability; will intend; be going to (intend); can performative permission; will predict; have got to constraint²⁴. Scarcely attested at 42 months are should and have to performative, ought constraint and should inference²⁵.

Wells found an interesting relationship between his adult and child data. Although 25.3% of his adult utterances contained auxiliary verbs (including the primary auxiliaries) the comparable figure for children was 9.4%: however there was a very similar distribution of forms (correlation $r = 0.93$) between the two corpora. Wells was surprised by the number of forms not represented in the adult data, but this was surely a function of the restricted type of discourse they would have with small children. However it was noted that the forms that occur most frequently in adults' speech are acquired first by the children. A close look at the distribution of forms showed that those indicating control (e.g. have to, must, had better) figure more prominently in the adult data, as might be expected.

Corroboration and an extension of this picture are found in the work of Shields (ibid) who has data up to the age of 4,11 years. A summary of her findings of the distribution of modal and quasi-modal forms is presented at 2.5.1 (derived from p. 186 in Shields).

Forms:	age		
	2,6-2,11 years	3,6-3,11 years	4,6-4,11 years
<u>will</u> , <u>shall</u> , <u>won't</u>	27.2	30.9	33.6
<u>can</u> , <u>can't</u>	36.4	34.8	25.3
<u>must</u> , <u>should</u>	-	5.8	4.1
<u>would</u> , <u>could</u>	-	4.5	10.4
<u>going to</u>	27.2	17.4	16.1
<u>have (got) to</u>	-	4.5	8.3
<u>had better</u>	9.1	1.9	2.1

Table 2.5.1 Distribution of modals and quasi-modal forms
(after Shields, *ibid*, p. 186)

It can be seen that the biggest growth area, after an initial reliance on can and will, is with the more hypothetical modals (would and could) which only make their appearance towards the end of the fourth year. It seems that for would, could and might 75% of the instances occurred in direct exchanges with adults. (Kuczaj and Daly (1979) report that the use of would is shaky even after the age of five.)

The volitional colouring with will is very strong (76% of instances), with 'prediction' weaker (24%). A similar picture is obtained with be going to which diminishes in usage, being replaced with will largely. The 'ability' and 'permissibility' senses of can are established very early with 'possibility/impossibility' a weak third (45:35:13%). Must appears only after 3,6 years, referring only to immediate circumstances (and in a sentence repetition task is sometimes replaced by have to). Have to chiefly appears with will, signalling immediate intentionality. Should appears after 4 years, used in relation to the right way of doing things, and ought to is absent from the data.

In a class-based study on the expression of uncertainty with five year olds, Turner and Pickvance (1972) found that I think tended to be used more by middle-class children, but other modal adverbs and modal lexical verbs were virtually non-existent (e.g. I suppose, I guess). Only middle-class children used modals like might and could in ascriptive clauses like (77) Might be a tunnel, (78) Could be a funny aeroplane.

In very general terms we might say that up until the age of 5 years, the child's modal system broadens from the interpersonal and action-oriented uses of can and will to include the other primary modals (but excluding must and may) as well as the quasi-modals have (got) to, be going to and be able to. A slightly later development is the use of the secondary modals would, could, etc., as well as must and may. However it seems unlikely that the secondary modals have been fully mastered by this point and certainly there is little use of other nonauxiliary modal expressions (such as modal adjectives, etc). Predictably, social background would seem to have some effect.

There has been less work on the expression of modality in later childhood: two studies merit some mention: Major (ibid) and Perkins (ibid) although we address their work in greater detail at a later stage (at 5.2 and 4.3 respectively).

Major's work is misleadingly entitled "The Acquisition of Modal Auxiliaries ..."; in fact her work comprises a number of language tasks which she carried out with children from five to eight years. They were asked to transform sets of sentences, all containing a modal auxiliary, in a number of different ways, for example converting affirmative sentences to parallel negative ones, asking questions of a hand puppet; also to imitate sentences containing verb phrases of varying complexity.

The children appeared to be familiar with the modal auxiliaries presented, but found the unexpanded verb phrases easier to deal with than the expanded ones, and formed questions with greater facility than negations. Syntactic restrictions on certain modals also affected children's facility with them (for example epistemic modals do not easily form questions She must be home by now => *Must she be home by now?). Most children showed some facility with the 'classic' modals can, could, will, would (which regularly have the NICE properties) whereas on the negation and question tasks there was more difficulty with may, might, shall, must and others (which do not consistently have the NICE properties). However, there are some problems with Major's transformationalist approach which we will deal with at Chapter Five.

Perkins recorded ten minutes of spontaneous conversation from groups of 3 children each, as they were designing and building Lego

houses. The children were 6, 8, 10 and 12 years, from four different social backgrounds. The data were examined for modal and semi-modal expressions, and Perkins was surprised at the restricted range which was used. This seemed to be a function of the informal nature of the interaction and the specific subject under discussion. Expressions other than the modal auxiliaries and a limited number of quasi-auxiliaries are hardly in evidence at all, and there is a striking resemblance to Wells' data (cf 4.3.2 below for summary tables). For example, CAN, WILL, HAVE (GOT) TO and BE GOING TO are the most used forms. Sex appears to have comparatively little effect on the overall frequency of usage, but children from a more favoured background use modal expressions more frequently than children from a less favoured background.

Because of his adherence to a core-meaning approach, Perkins is loathe to subcategorise the use of different meanings of particular modals. However he does present a subclassification of uses of CAN at different ages into

(a) ability (b) permission (c) circumstantial possibility, e.g. (79) Where can this ladder go then? and (d) suggestion, e.g.

(80) I'll tell you what - you can put that on top of there. There is a striking decrease of 'permission' uses and concurrent increase of possibility uses with age. However, Perkins sounds a 'severe note of caution' about interpretation problems: he claims that in many cases it is difficult to say categorically that one and only one of these four meanings is intended. He would see it is as possible that can is sometimes used with the precise intention of not committing the speaker to one or another of these explicit notions. Wells, on the other hand (in a personal communication to Leech and Coates, 1980) claims to have found no significant problems of indeterminacy in his corpus. The issue could presumably be partially resolved by having sufficient contextual information for an utterance, but the possibility of an indeterminate intention is psychologically intriguing.

Rarer non-auxiliary expressions which Perkins finds include probably, I expect, I suppose, maybe, I reckon, perhaps. We would want to be able to account for their relatively late emergence.

A minor digression is in order, to refer to studies on notions which could be considered as related to or part of modality. Lodge (1979)

has observed 5 to 10 year old children's use of simple past tense when used for giving stage directions, rather than a general 'present' tense. He gives the social interpretation of the past tense here as 'self-effacement' in conversational interchange, and refers to the use of modals as a method for avoiding direct confrontation (cf Perkins' quotation at 2.2 above), for example, the past form could be used in polite requests - Could you help me please? Kaper (1980) also notes that 'non-actuality' is an important function of the past tense. 'Remoteness' could be seen as a parallel function.

The use of hypothetical reference in an observational and elicited situation (with children 2-5, 6 years and 3-7, 9 years respectively) is reported by Kuczaj and Daly (ibid). Initially children lack the forms for making explicit hypothetical reference, but attempts at implicit hypothetical reference may be discerned. These are inferred in context by the authors. After this children learn to refer explicitly to isolated hypothetical events, but seem unable to maintain hypothetical reference throughout a discourse sequence. Reference to future hypothetical events appears to be an earlier acquisition than that to past hypothetical events: it is suggested that for the future the hypothetical and the predicted are both 'unactual' whereas for the past the contrast lies between the 'unactual' and the actual. The latter contrast may be more difficult to make.

There has been some recent interest in children's understanding of factive versus nonfactive predicators, e.g. know, be surprising versus think, be possible. (Factive predicators presuppose the truth of their complement sentences.) In a recent review Scoville and Gordon (1980) conclude that the acquisition of factivity seems to proceed on a verb-to-verb basis. (Verbs do not fall neatly into factive vs nonfactive categories.) The acquisition of factivity appears to progress gradually but there is conflict amongst the studies as to exact acquisition times. They suggest what is probably an important research principle, that the characteristics of the verbs should be verified with an adult sample before undertaking developmental work.

In a recent experiment by Hirst and Weil (1982), it is once again misleadingly claimed that an account is offered of the acquisition of different types of modal meaning. In two tasks children (ages 3,0 - 6,6 years) heard two modal 'propositions' of varying strength. In the

epistemic conditions the propositions concerned the location of a peanut, e.g. (81) The peanut should be under the cup; (82) The peanut may be under the box. The children were required to choose the most likely location of the peanut. In the deontic condition two teacher dolls imposed varying strength of obligations on a puppet as to which room he should go: for example (83) You must go to the red room vs (84) You should go to the green room. The child was to choose which room the puppet would go to if he was a good boy.

The design was meant to show children's appreciation of the relative force of pairs of epistemic and deontic modals respectively, although in the first task factual is was included too. This study purports to answer two questions:

- (a) When learning to differentiate the relative force of modal propositions, does the magnitude of the difference between the strength of the two modals affect their ease of acquisition? The larger the difference the earlier it should be appreciated.
- (b) Are the deontic and lexical meanings derived from a single lexical system?

The frequency scores are presented for the correct choices is > may, must > may, etc. The authors claim that the youngest children understood the distinction between is and may while the older children understood progressively finer distinctions. The factual/modal contrasts were made accurately before the modal/modal contrasts. Unfortunately the authors appear to have used their statistical tests incorrectly²⁶, and while there does appear to be some effect operating here, I hardly think it provides "information about the order of acquisition". We know from Wells' data that children acquire epistemic must, should and may relatively late (i.e. after 42 months) but from this present study we cannot say for example that is and must are "differentiated" very late. Perhaps it is simply the case that equivalent pragmatic inferences could be made from is and must in particular contexts²⁷. As to the rest, the children may have been operating with a heuristic which says 'factuals are better indicators than modals'.

The two tasks seem very different in their demands, and the deontic one, where performance seems to be retarded, may well be tapping more than simply a response to varying strength of obligations. I think it would be politer to obey the less forceful of two mandatories,

especially if the primary consideration is of being a "good puppet": there may be two opposing forces here. The authors do admit that their results go counter to observational findings of deontic uses being attested before epistemic ones. However, this does not prevent them from inferring that "the deontic reading may have been built from the underlying meanings established to interpret the epistemic modals, or alternatively, both readings may be derived from an underlying interpretation based on 'strength' or probability" (p. 665-6). This flies in the face of what is known about the essentially "interpersonal and action-oriented" functions of early modals. A parallel developmental pattern (even if it were accurate) could not per se demonstrate the monosemic nature of the lexemes. This would seem to be a theoretical issue to be decided on semantic and syntactic grounds²⁸, or else conceptually (cf Perkins' approach).

However, this is an interesting study and novel in its design: the chief problem is not with the tasks themselves, but the fact that Hirst and Weil interpret too much from their results.

We should now have some idea of the relative order of the acquisition of modal forms and their uses, from early childhood until adolescence. It would be satisfying to try to give some kind of explanation accounting for this order. A small number of researchers have attempted to do so and we address their accounts now.

Shields (ibid), Fletcher (ibid) and Wells (ibid) are concerned with the development of the range of meanings from the earliest stages. They stress the child's initial concern with 'human action', 'immediate action', 'subject-as-agent and potential events'. (It will be remembered that CAN and WILL, the first two modals to appear, are also the only two which may be subject-oriented.) After this earliest stage the child must progress through a less agent-oriented awareness of potential and constraint of potential in others (including the abilities and wishes of other people). The consideration of objective possibilities, probabilities and more generalised rules comes later: Wells would claim that after this more detached consideration of the likelihood of events and states of affairs, the child would finally use his existing knowledge to draw inferences²⁹ about events not directly experienced.

There is a familiar ring about such a description: it could be a (more-or-less) accurate summary of general conceptual development. The

question then arises as to whether the development of modality merely recapitulates the development of conceptual principles, or whether we can make the stronger and perhaps more interesting claim, that we have here a particularly clear mirror of conceptual development, with the modal expressions as critical indices of conceptual development.

The question of the determinants of the growth of the modal system has not been much addressed: the literature is saturated with mother-child interaction studies but none specifically on the use of modal expressions. The correlation between adult and child modal forms has been noted above (Wells' study); it does seem to be the case that mothers will initially talk much to their toddlers about the child's capacities and intentions as well as their joint intentions. One study has shown that there are changes in the explicitness of directives to children as a function of their age (Bellinger, 1979). For example, imperatives such as You put those blocks away decline while declaratives (= indirect requests) such as The blocks must be put away increase, when addressing children from 1 to 5 years. It seems that over this period children also learn to shift from direct forms (imperatives) to indirect directives, e.g. Do you want to get in my car? Would you give some to me? (Garvey (1975), Read and Cherry (1978)). It seems that adults have an intuitive knowledge that indirect speech acts have an extra component of meaning and therefore would be initially more difficult to learn. Other aspects of modal meaning as well as the social-conventional would be interesting to study in an interactive setting. For example, it would be interesting to know at which point epistemic modals are regularly used to children: do parents consider this a difficult type of meaning?

The conventional wisdom is of course that cognitive concepts underlie semantic ones. In our specific domain, Wells does explicitly refer to the 'notional' complexity of the modal meanings, and Shields appears to assume that the acquisition of modal meanings would rest on prior cognitive development, but it is Perkins who specifically invokes Piagetian notions in his "theory" of modal acquisition.

For Perkins, the child's early 'egocentrism'³⁰ can account for the initial appearance of subject-oriented modals, and even by the age of 6 years, children use modals predominantly with first person singular subjects. At the stage of 'incipient co-operation' (7 years) the subject

pronoun tends to alter to we. (Notice however, that in focussing on subject persons, Perkins has ceased to make reference to the nature of the modality.) Perkins explains the decreased frequency of modal expressions from 10 to 12 years (which he observed) by the fact that children have less need to establish social co-operation since these rules of co-operation have largely been formulated³¹.

Perkins proposed in his model that modal adverbs, adjectives and nominal expressions can be regarded as an 'objectification' of the kind of modal relations expressed by modal auxiliary verbs. Notions such as 'possibility' (e.g. possibly, its possible that) are of a higher level of abstraction than the notion of "an event being relative to a circumstance" (e.g. can). Perkins would equate the objective expressions with the hypothetico-deductive notion of 'possibility' (cf 2.3 above), but this seems to me to be drawing too strong an analogy (since one could say, for example, It's possible that my mother will arrive soon, since she left in good time which would not be an instance of hypothetico-deductive thinking). However there is validity in the view that the objective expressions are a late development, and that they may even then only occur in formal discourse (from Lyons, *ibid*).

The final concern of this review is to address an area where no research has previously been carried out on modal expressions, but where such research might possibly bear fruit: this is the research into language skills³² in children which have been termed 'epilinguistic' or 'metalinguistic'.

The language of children after the age of about five years had until recently been supposed to be relatively mature: children after this age rarely seem to make gross errors of performance and seem capable of expressing what they want to say. There was some evidence to suggest that there is some instability in the language system at 5-6 years and between 10-12 years (Palermo and Molfese, 1972) but this was not widely recognised.

What did seem to be a puzzle in the study of child development was the fact that while it is relatively well-established that there are stage effects (whether conceived of in Piagetian or neo-Piagetian terms) in cognitive development, there did not seem to be significant 'stages' in the language of middle and late childhood, after the enormous gains of early childhood (Hakes et al, 1980, Macdonald, 1978).

Perhaps it was because we did not know what would constitute a qualitative change in language.

However, a potential candidate has recently been recognised: the development of linguistic intuitions (Hakes *et al*, *ibid*, p.vi) -

"Might it be that this is what characterised linguistic development in middle childhood - that children became able to do a greater variety of things with language than just understand and produce it.... Might it be the emergence of such linguistic intuitions that provided the missing parallel to cognitive developmental changes in middle childhood?"

Linguistic intuitions are familiar in transformational accounts of language, where they constitute both the data to be explained and the confirmatory evidence for hypotheses (Botha, 1973), but the concept was not much explored in early language development studies, principally because it seemed to be impossible to get linguistic judgements from very young children³³. However, the importance of being able to reflect on language forms, to make language opaque, has been stressed in relation to education, and particularly linked with the development of literacy skills (Cazden, 1973).

While the transformationalists relied on a pretheoretic and unanalysed notion of native speaker intuitions about for example, paraphrase, synonymy, ambiguity and relative acceptability of sentences, much more thought has recently been devoted to analysing different kinds of metacognitive skills in the awareness of language. At least the following skills have been identified (Clark, 1978, p. 34):

- (i) Monitoring one's ongoing utterance
- (ii) Checking the result of an utterance
- (iii) Testing for reality (deciding whether an utterance works or not)
- (iv) Deliberately trying to learn (new words, roles, etc.)
- (v) Predicting the consequences of using inflections, words, phrases or sentences
- (vi) Reflecting on the product of an utterance (e.g. providing definitions, constructing puns and riddles)

It is important to note that these metalinguistic skills are skills to be investigated for their own sake: however, it is not necessarily the case that by investigating these skills, ~~that~~ we are thereby investigating the ground or basis of (spontaneous) linguistic performance. According

to Levelt et al (1978, p. 5) "explicit intuitions have at most a highly indirect and involved relation to the base of tacit knowledge". Levelt et al also make the following important epistemic distinction: if one is aware of a linguistic entity X, X might be one of the causes of this awareness, but it could also be nothing else than the intentional object of the user's awareness (cf also Cooper (1975) and Macdonald (ibid) for further discussion). The 'intentional object' interpretation would lead us to view metalinguistic awareness as simply another skill. While it is difficult to know how to decide between the correctness of these two positions, I would prefer to adapt the more conservative interpretation (rather than the more radical and seductive causal interpretation).

Karmiloff-Smith (1979a) has made the distinction between 'epi-linguistic' and 'metalinguistic' skills - which would seem to parallel Clark's distinction between (v) and (vi) above: she points out that simply talking about usage as opposed to explicitly formulating rules may make different cognitive demands on children. In her research on the acquisition and correct use of determiners Karmiloff-Smith found epi-linguistic awareness to be some 1½ to 2 years behind appropriate spontaneous usage (of the same items): that is to say, children could use finely discriminated forms accurately before they could explain their usage³⁴. One other striking finding was that before 9 years children tended to make reference to the extralinguistic context when asked to reflect metalinguistically on their response. For example I knew you were talking to the boy because he's only got one book (p. 319). It was not until 9 years in most cases that children explicitly referred to the linguistic cues they had used, e.g. I knew you were talking to the boy because you said 'lend me the book' and if you'd been talking to the girl you would have said 'lend me a book' (p. 319).

Other studies devoted to metalinguistic awareness are reviewed in Chapter Five: it is sufficient here to note that there are no studies to date which have asked epi- or meta-linguistic questions about modal expressions. There would seem to be a number of questions we could ask in this regard: it would be interesting to know at which age the children are aware of the syntactic constraints on the modal auxiliary system (as delineated at 2.3 above), as well as of the gradations of meaning and contrasts within the system.

2.6 The way forward: what are the interesting questions to ask about the development of English modality?

The reader may wonder whether we have found any signposts to interesting research on the complicated journey we have just completed. It could be said that there are no floodlit highways to follow, although it is possible that reconstruction of some minor roads would lead us to some interesting places. We now have a fair amount of observational data, but there is a dearth of adequate experimental work in the area.

In the research which is described in the subsequent chapters, many specific questions are raised. However the three primary considerations which guided the research were as follows:

(a) We must have an adequate working model on which to base our description. There has been much fruitful theorising on English modality. While Perkins' model is conceptually attractive, Palmer's work captures nuances of usage which would presumably constitute the developmental end point. Hence, a slightly extended version of Palmer's model is presently in the following chapter, extended where I have found other people's insights valuable. The model is most explicitly applied to the description of the case-study data and is presupposed in the rest of the research.

(b) At the conception of this study, Perkins' work had not yet emerged. The most comprehensive (and theoretically satisfactory) observational account was that of Wells. It seemed appropriate to continue observational work with children after 42 months. With the onset of schooling, children are forced to manipulate their language more consciously and exploit its functions more fully. We might expect to see dramatic changes in their language at this time. Observational study at this point might yield a particularly rich picture of development. The main focus of the experimental work was on this period too. (However we do look at older children's performance too.)

(c) It seemed to be of interest to explore children's epi- or meta-linguistic competence with modal expressions and to relate their performance, to what is known about children's spontaneous usage, and also to what is known about the general level of linguistic competence at specific stages. This general concern of the work is taken up particularly in the final discussion in Chapter Seven.

CHAPTER THREE: A WORKING MODEL FOR THE DESCRIPTION OF MODAL EXPRESSIONS

3.1 Introduction

I have taken Palmer's (1979) theory of English modals as the basis for my theory, in broad outline. In the description of the major divisions to be drawn, unless otherwise stated I rely on his insights. There are a number of subsections in which I refer to other workers in modifying Palmer's model: I make this explicit where necessary. I have done this where I consider other workers' analyses to be more perceptive. And then there is my own reassignment of specific expressions under different types. Perhaps it would be more accurate to describe the working model as an extension of Palmer's theory rather than simply based on it.

I have criticised Palmer's model in the previous chapter on general grounds: it would be inappropriate¹ to have to defend each alternative analysis in specific terms. However I will make some general remarks about this restructuring before I spell out the details of the categories.

The status of epistemic modality is well-established as being a distinct kind of modality: details of definition by paraphrase vary slightly, and for example, I give Haegeman's (1980) definition of WILL which seems to have been systematically thought through.

The next major kind of modality Palmer (ibid) expounds is 'deontic' modality: he borrowed this term and also the term 'dynamic' from von Wright (1951a). He changed from using 'discourse-oriented' in his 1974 model to using 'deontic' in the later version, not without regret as he considers that the earlier term is probably more "accurate and illuminating" (p. 58). Von Wright's term refers to modes of obligation, with the categories obligatory, permitted, indifferent and forbidden. In English a salient contrast between dynamic and deontic modalities is that the latter is 'performative', the former not. Palmer takes the criterion of performativeness² as one of the starting points for defining the deontic modals. However, he extends the definition to include several uses that are not strictly performative but relate to performative uses.

What this involves is, instead of simply including giving permission, imposing an obligation, the term is extended to cover when the modals are used in interrogation, to ask if the addressee gives

permission, if he lays an obligation, etc. The term 'discourse-oriented' would be more adequate to cover these instances.

I would want this term to cover conveyed implication uses, requests for action etc. as well. For example, Could you switch off the light? Can I have the light off? This means I am broadening the original construct of performativeness with modes of obligation etc.

Palmer would want to account for the uses of SHOULD and OUGHT TO as deontic where the speaker takes responsibility for the judgement without involving himself in a performative action. I extend the term discourse-oriented to cover parallel uses of MUST, HAD BETTER, HAVE (GOT) TO where the speaker takes responsibility for the judgement. Palmer's model would allow him to do this, but he takes a conservative line in practice and treats all the forms under dynamic necessity.

Thirdly, Palmer is able to extend his definition of 'deontic' to include modals as used for rules and regulations, e.g. In the library you can take out a book for a whole year unless it is recalled. These uses could be seen as reported performative acts by people in authority but there is obviously also a gradation here to dynamic uses³. However this is a related use which can usefully be accounted for as discourse-oriented.

While the term 'deontic' might be used for terminological simplicity, the term 'discourse-oriented' would more appropriately describe the phenomena Palmer tries to account for - since he concerns himself with more than simply modes of obligation. Certainly it would be accurate in my description since I want to account for interactive uses, involving speaker and hearer in the discourse⁴.

Palmer shows the relationship between the modalities when he says he uses the term 'dynamic modality' to refer 'generally to the modality of events that are not conditioned deontically' (p. 3) (where epistemic modality deals with propositions). However Perkins (ibid) is more explicit in using the term 'dynamic' to refer to the relationship which exists between circumstances and unactualised events in accordance with natural laws. In the course of my description it should become clear that my analysis is more fine-grained than Palmer's and allows for example some uses of MUST to be categorised as 'dynamic' and some as 'discourse-oriented' (similarly with NEED, HAVE (GOT) TO etc.) depending on their function in particular utterances. The conveyed implication uses have been transferred entirely into discourse-

oriented modality, once again because of their function.

An example of another change made is in my treatment of what Palmer calls 'dynamic subject-oriented' (volitional) WILL, e.g. I don't love him anymore so I'll leave him which I have chosen to treat together with 'futurity' WILL, e.g. The rain will clear towards evening and the wind will drop. Following Haegeman (ibid) I regard 'volitional' WILL as contextually determined in its meaning, in its basic meaning similar to the 'pure' WILL of 'futurity'⁵.

Apart from the degrees of modality of 'necessity' and 'possibility', which cross-classify the three modalities already described, Palmer chooses to establish and describe what he sees as a third degree of modality, that is 'futurity'. This is consonant with some recent thinking about future tense as a modality (cf Lyons, 1977, p. 809). 'Reference to the future ... is often as much a matter of modality as it is of purely temporal reference' (Lyons, ibid, p. 816). The modal verbs are used to refer to future time, which involves making a prediction, non-factivity rather than fact (with 'futurity' WILL) as well as what is more obviously modality, for example deontic SHALL undertaking - I shall meet you at six tomorrow and epistemic WILL - The students will be sitting their final examination about now. The modal verbs even in their present tense forms often refer to future events, e.g. The thesis may be finished in six months. Indeed the primary and secondary auxiliary modals have no way of being marked formally for the future (witness *will must versus will have to, where HAVE TO is a semi-modal).

While all these observations might be brought to bear to support the treatment of 'futurity' as a modality, this position is moderately new and not generally received⁶. While I would not want 'futurity' to carry the full weight implied by Palmer's description as a 'third degree' nevertheless the interest of the picture of non-factivity and non-actuality of the future WILL (and related forms) will, I hope, justify its inclusion in this study. My framework has reduced some of the pragmatic detail which Palmer sees fit to try to account for. I have relied fairly heavily on Haegeman's exposition of WILL and SHALL which I have found to be the most discerning and coherent and also paid some attention to Leech's (1971) analysis.

The broad types which are set up are principally justified on semantic grounds. However there would seem to be syntactic criteria

which would support the divisions already established (Palmer, *ibid*, p. 33-7).

First, we may ask whether the modality, or the event specified by the verb may be marked as past. Secondly, we would similarly ask whether the modality, or the event, or both, may be negated. Thirdly, we may ask whether the modal (the modality) is voice neutral, i.e. whether a sentence containing the modal can be passivised without changing the meaning (other than the thematic meaning associated with the subject). The answers generate the following matrix (extrapolated from Palmer):

	Epis.	Disc.or- iented	Circumstan- tial dyn. ⁷	Subj.orien- ted dyn. ⁸	Futurity WILL
Past - modality	No	No	Yes	Yes	No
-proposition/event	Yes	No	No	No	No
Negation - modality	Yes	Yes	Yes	Yes	No
- proposition/event	Yes	Yes	Yes	Yes/No	Yes
Voice-neutrality	Yes	Yes	Yes	Yes/No	Yes

I would not want to claim that this is a watertight classification for any but the 'classic' modals of each type, principally because each type has "fuzzy edges", i.e. marginal instances which may not fit all the criteria. However, it does show that the kinds of modality established on semantic grounds can be independently separated in terms of their grammatical-semantic characteristics. Since this information is extremely dense, a few examples would probably be helpful.

The first criterion of the marking of the past is particularly productive in maintaining the type distinction. The nature of epistemic modality predicts the function of the epistemic modality in relation to past tense and time. Generally, the modality is in the present only, because the judgement (about the possibility or necessity that something is the case) is made in the act of speaking - that is, it is performative. The 'past tense' forms do not refer to past judgements but are tentative with present time reference. However, the proposition can be in the past, since we can make judgements about past events (specified by the main verb). Hence we have:

I think I may have to move this chair (Simon, 1:31-3).

I think I may have had to move this chair.

In the second utterance the speaker refers to the possibility that he had to move the chair.

In contrast, with dynamic modality, only the modality can be marked for past tense; there is no independent past tense marking of the event. The notion of past possibility (including ability) which is not actualised is contained in the positive past tense form of CAN, i.e. could where the action is single and definable. Where one wants to express that the possibility is actualised the related semi-modal BE ABLE TO is used. So, contrast:

They turned up early so I could go (if I wanted).

They turned up early so I was able to go (and did).

Where there is a continuing or repeated possibility over a period of time could may refer to an actualised event(s), for example,

I used to leave work early so I could get dinner
cooked in good time.

What is important to recognise here is that in contrast to epistemic modality, the modality itself is in the past: that is, for example past possibility, which may or may not be actualised.

In contrast yet again, we have discourse-oriented modality. This is most characteristically represented by deontic modals, for example MUST, when used performatively and the speaker takes responsibility for the imposing of the necessity. For example,

You must be careful with them because they're mine (Janet 5:110).

Classic deontic modals have no past tense forms for past time. Neither in the modality nor in the event can there be any indication of past time. One cannot in the act of speaking give permission, impose an obligation or give an undertaking in the past or in relation to past events.

This slightly lengthy exemplification should have served to show that we are indeed dealing with three quite distinct kinds of modality, whose grammatical characteristics can be predicted from their functions. Their difference is best shown in this first criterion. However, we need to see what the other criteria entail.

With regard to the negation criterion, with the MAY of epistemic possibility either the modality or the proposition may be negated, or possibly, both. However negating the modality involves a change to a suppletive form:

James may be studying.

James can't be studying.

James may not be studying.

James can't not be studying (since his finals start tomorrow).

The voice-neutral criterion in fact serves as a test to differentiate 'pure future' and 'volitional' WILL (of agreement), where the first is voice-neutral and the second not:

Malcolm won't see James.

James won't be seen by Malcolm.

The sentences are synonymous on their pure future reading but are not judged synonymous on the volitional reading.

In my case-study data specifically, I have been concerned to account for all kinds of expression of modality, not just the 'true' modals or verbs that are 'formally' modals, nor even just broadening sufficiently to include the 'semi-modals' which are partly in the formal system. Palmer himself does discuss verbs like BE ABLE TO and BE GOING TO which have a place in the semantic system, supplementing or contrasting with the modals, but I have extended my description to account for more expressions, many of which Perkins (1980) deals with. The net effect is to render the description relatively inelegant, but hopefully, in some measure descriptively adequate.

Examples of categories are provided, where possible, from my own data, but otherwise from The Survey of English Usage examples cited by Palmer (ibid) and/or Haegeman (ibid).

We must point out that it would be neither appropriate nor expedient to be spelling out a theory of modality at length. Essentially what I present is a semantic description. From the brief description and cross-classification above it is clear that the syntactic characteristics of the modals need to be described in any full explanation. But this is not my present function. What I am doing is to give a reasonably coherent framework principally that the case-study data and then the tasks may be fully understood.

What will also be omitted here is an in-depth description of some of the meaning implications of the modals, which at least partially serve to differentiate very similar pairs (of auxiliary modals and semi-modals). This will be remedied when we focus on these issues in the description of the experimental tasks, where the different

overtones are something we specifically examine.

3.2 Epistemic Modality

This word comes from the Greek word for 'knowledge', which is epistēmē. However, we are not concerned with true knowledge, but rather with belief, with non-factivity rather than factivity. With epistemic modals we make judgements about the possibility or necessity that something is the case: this is the modality of propositions, of third-order entities (Lyons, *ibid*, p. 422f). Epistemic judgements are usually made in the act of speaking, they are 'performative'. They are therefore generally in the present only. The 'past tense' forms are normally tentative with present time reference. One could report past judgements by using verbs like THINK, BELIEVE, SUPPOSE, etc. However, the proposition can be in the past. In making judgements about past events, we use have before the main verb.

3.2.1 Possibility

In Standard English or literary English epistemic possibility is indicated by MAY, which is appropriately paraphrased "It is possible that..." It is extremely rare in our data, which is in this sense representative of Scottish English.

I think I may have to move this chair (Simon 1:31-33).

Might is seen by Palmer (*ibid*, p. 48) to be the tentative or unreal form of MAY, in the Standard system. It is used in the same way:

It might be a bit sore (Janet 6:120).

However, speakers without MAY must be said to use might - or perhaps better expressed as the lexeme MIGHT in this case - as the only expression of epistemic possibility, with no tentative - nontentative contrast made.

3.2.2 Necessity

(a) The classic example here is with MUST, which may be paraphrased "The only possible conclusion is that ...".

That village is on a Greek island it must be a small village (Simon 2:63).

MUST most often refers to states or activities in the present, commonly together with the verb BE. In the negative the proposition is negated with can't in Standard English; in Scottish English mustn't is possible (and possibly, American English).

Karen and Norman aren't here tonight [at group] - They mustn't be back from their holiday yet (informally attested).

(b) Palmer would have SHOULD related to MUST, as the unreal or tentative marker of epistemic necessity. It does not express necessity, but rather extreme likelihood or a reasonable assumption. It implicitly allows for the speaker to be mistaken. (It parallels discourse-oriented and dynamic uses of SHOULD which also allow for the event not to take place.)

This should be going soon, shouldn't it? (Aileen 2:15)

(c) The forms HAVE TO and HAVE GOT TO are also necessity modals, more common in Scottish and American English. However, we only have marginal instances in our data:

If they were, they'd have to be red hands, but I don't think Noddy has hands, do you? (Janet 3:48-9)

3.2.3 WILL

(a) Rather than making an assertive statement concerning a state of affairs the speaker may indicate that he assumes that this is the situation, using WILL. Rather than use the label 'probability' to characterise the meaning of WILL it seems that this does not capture the degree of confidence of the statement, and it seems preferable to use labels like 'assumption', 'inference', 'supposition'. These point to the speaker's involvement in making the judgement (Haegeman, *ibid*, p. 398-9). We have chosen to restrict the attribution of epistemic to cases where the time reference is to present or past events⁹:

Fiona, that'll be going down to Miss Macdonald, she'll be hearing it! (Aileen 5:28-9)

(b) Would may be seen as the tentative form of WILL. A rough paraphrase might be "I should think that ..." (Palmer, p. 48). In line with remarks about WILL, epistemic would would be seen as making predictions about the past and present¹⁰:

It would be a long way from here, wouldn't it? (Simon, 4:31).

3.2.4 Other epistemic expressions

We also have epistemic modal lexical verbs, adverbs and adjectives in our data, the characteristics of which are described in the literature only by Perkins (ibid)¹¹: so I base my remarks on his work. To understand the distinctions he makes, it is necessary to introduce the distinction between subjective and objective epistemic modality. The speaker is committed by the utterance of an objectively modalised utterance to the factuality of the information he is giving the addressee. The essence of subjective modalisation is to express the speaker's reservations about giving unqualified assent to the factuality of the proposition embedded in his utterance: these are statements of opinion, hearsay, or tentative inference (Lyons, ibid, p. 798-99)¹². We would summarise the characteristics of the expressions in our data as follows:

<u>SUBJECTIVE</u>	<u>OBJECTIVE</u>	<u>NEUTRAL</u>
PRESUMABLY	PROBABLY	PERHAPS
SURELY	CERTAIN(LY)	MAYBE
SEEMS	DEFINITELY	
IT LOOKS AS IF		

SURELY is distinguished from the other modal adverbs in that the addressee is asked to confirm the speaker's assessment of the truth of the proposition in question:

She knows people can't help saying "drat" sometimes,
surely you know as well! (Aileen 5: 143-144)

Modal adverbs differ from the other modal expressions in that they are far less explicit in the way they qualify the meaning of a clause or sentence: they are specifically sentence adverbs and distributionally mobile (which enables it to be fronted, tagged on or even inserted intrasententially):

'Helping hand' - that's definitely what you are Fiona,
you are an irritating hand (Aileen 5:208).

Four seems to be a very common number at the
moment (Aileen 5:243).

Perhaps I should find another thing, don't you think!
 (Simon 3:38-40).

I think you'll probably record something over it
because you probably don't want it (Timothy 3:1-4).

3.3 Discourse oriented modality

Our 'deontic' modality is centrally defined in terms of social and institutional laws. The first involve 'rules' relating to social status, according to which one person may be said to have personal authority over another, usually communicated by primary performatives. Secondly there are 'laws' explicitly laid down by some legal authority or institution which define a set of rules of behaviour for some specified social group. It will be recalled that we have expanded our analysis of 'discourse-orientation' to include 'performative'-related uses, for example, asking permission and also usages which have speaker involvement. We would take this to include conveyed implication usages of 'dynamic' modals, dealt with here because of their function. These modals, because they are large in number, will be described in terms of seven sub-types as follows:

1. Necessity
2. Commands
3. Rules and regulations
4. Obligations and undertakings
5. Permission
6. Requests for action
7. Offers

1. Necessity is epitomised by MUST. Not all examples of MUST are 'discourse-oriented', many seem to be circumstantial or indeterminate. We account here for those instances in which the speaker takes responsibility for the imposing of the necessity, e.g. You must be careful with them, because they're mine (Janet 5:110). The form for negating the modality for MUST, is needn't. The following necessity modals may be used in much the same way as MUST: SHOULD, OUGHT TO BE, SUPPOSED TO, HAD BETTER, HAVE (GOT) TO, NEED TO:

You'd better get out the way, let me in (Aileen 4:32).

Unless I say, you have to have some of it (Janet 6:53).

There is an issue of theoretical and practical import here which must not be skirted. Palmer is adamant that HAVE (GOT) TO is never deontic (discourse-oriented). Leech too, says that it is MUST which imposes the speaker's will, for example in,

You must be back by ten o'clock

('You are obliged [by me] to ...') (1971, p. 71).

You must get a haircut (ibid, p. 95).



However, in writing on the expression of obligation in Scottish English Miller (1980) notes that he would say:

You've got to be back by ten o'clock.

You'll have to get a haircut.

As will be shown in our own data, it seems that HAVE (GOT) TO can be used where the speaker takes responsibility. We may be opening a hornet's nest here, because it may also be critical for maintaining theoretical contrasts to be able to say, for example, that:

"Whereas the core meaning of MUST is compatible with a deontic source which may or may not be the speaker, the core meaning of HAVE (GOT) TO is compatible with a deontic source which is external to the speaker" (Perkins, *ibid*, p. 101).

It will not help to say that this contrast can be overridden by the pragmatic component of the utterance: what I think Miller is suggesting is that, at least in Scottish English, this basic contrast is dis-integrating, with HAVE (GOT) TO intruding on the territory of a rapidly retreating MUST. In any event Miller has data from questionnaires and extensive taped conversations which support his claims about the function of HAVE (GOT) TO.

Some brief remarks about the other forms listed are in order. It is at this point that my description and categorisation departs markedly from that of Palmer. He deals with SHOULD and OUGHT TO under 'dynamic necessity' although he admits that they sometimes have highly deontic characteristics (p. 69). I would want to allow that they be discourse-oriented where they involve speaker responsibility. Miller (*ibid*) observes that in spoken Scottish English OUGHT is absent, while SHOULD is primarily associated with moral duty.

Leech (*ibid*) asserts that the assertion of obligation of NEED is not as certain as with MUST. He says that the NEED in

You need to get a haircut (Leech, *ibid*, p. 95)

is every bit as strong as MUST in the same context. Perhaps because MUST is largely peripheral in spoken Scottish English the sense of NEED has strengthened. Also Miller sees this use of NEED as a command rather than simply calling attention to situational constraints (Palmer's 'dynamic' necessity). In contrast, the form with progressive -ing, You're needing to get a haircut is seen as closer to this less forceful reading (Miller, *ibid*, p. 8).

HAD BETTER can be used to express 'deontic' modality. While the deontic source is other than the speaker, the form makes clear

that in the speaker's view it is 'better' that the event be brought about, in view of the adverse consequences if it were not (Perkins, *ibid*, p. 107).

2. CAN is sometimes used to convey a command, often of a 'brusque' or somewhat 'impolite' kind (Palmer, *ibid*, p. 60),

e.g. All the girls can go to Miss Keymer (Janet 6:101).

Palmer suggests that this really only makes very confident, sarcastic suggestions, but I see no reason to believe that the speaker does not in fact, rely on his authority (albeit possibly 'make-believe' in the case of play).

3. There is the further use of CAN - that in rules and regulations. This allows for what is possible -

e.g. You can put in piece one, which is ten (Janet 4:60).

We would also want to use the explicit BE ALLOWED TO for possibility. As far as necessity is concerned we have HAVE (GOT) TO, MEANT TO BE and IS TO, which in this context involve the reporting of temporary or permanent rules:

You're to stop there, when you're going out of streets
you stop (Simon 1:179).

4. As far as imposing obligations and giving undertakings is concerned we would differ from Palmer in our analysis. While not disputing that there is a SHALL of undertaking in southern British English we noted no cases and would venture the use of WILL in its place. This would presumably point to the further weakening of SHALL in the system -

I'll give you everything that I've got if you just give
me that (Aileen 1:3).

There is general agreement that 'll is the reduced form of will and not shall (cf Leech, *ibid*, p. 78, 80).

The indeterminacies in establishing instances of this category will be taken up in the next chapter.

The reverse side of giving an undertaking is seen in imposing an obligation. These directives are chiefly used with you but occasionally with we¹³. This is differentiated from a mere prediction by the pragmatic condition that the speaker has a position of authority. The interlocutor either acts out the activity described by the verb or he causes it (Haegeman, p. 196). We have examples with WILL and BE GOING TO:

No you won't Fiona, you won't hold any! (Aileen 4:14).

Now Carol, the next time you're going to be our teacher now
(Janet 3:59).

5. Although Palmer says he finds only a few examples in the Survey of MAY and CAN being used in what is clearly the permission use, this must be a function of his data base. In the interaction of small children and adults and even in their interaction with each other, there are bound to be a large number of instances of this. We have the performative use to give permission and the non-performative interrogative to ask for permission: either CAN or MAY may be used, in both forms, e.g. Can I stop the swing? (Aileen 4:26).

Another name? Yes of course you may (Janet 5:51).

CAN is gaining ground on MAY now and the distinction may well not be ~~the~~ shibboleth of the next generation of language teachers.

6. Asking permission may carry the implication that the addressee should act, in order that the relevant event may take place:

Can I have one of yours please? (piece of Lego) (Aileen 1:18).

I have called this extended usage - 'deontic request for action' which I think is reasonably distinct from 'pure' permission. A similar conveyed implication use, but derived from a different source is with subject-oriented CAN. Here the interrogative with second person is used, where ostensibly the addressee is asked whether he is able to do something, but the illocutionary force is that of a request. There is a parallel use with WILL where the question may be about 'intention' but where the utterance has the illocutionary force of a request. Semantically this is very close to usages with WANT and LIKE - do you want to....?; would you like to....?

Come on Douglas! Could you help me? (Timothy 2:35).

Will you rub it with this? (Janet 2:74).

WHY DON'T ... operates as a very direct request or suggestion for action with you or we. Other suggestions for action include WHAT ABOUT..., LET'S... or rather more tentatively or remotely, I WOULD/SHOULD... . Parallel to the volition sense with WILL, there is a similar use of SHALL, with we where the speaker is not simply interested in finding information, but is suggesting a joint action -

Shall we play 'schools'? (Janet 5:24).

In Scottish English we could expect to find this replaced with WILL,

together with the SHALL described immediately below.

7. Very similar to SHALL we, is the use with the first person subject, with the speaker offering to act. Also there is CAN or could with first person subject declarative, functioning as an offer. We also find CAN IF YOU WANT TO as an offer, with some action specified: this could alternatively be seen as a permission usage -

Shall I switch it off? (Timothy 1:78).

I could tell you what we had for lunch at nursery (Janet 1:2).

3.4 Dynamic modality

Palmer (ibid) and Perkins (ibid) following von Wright (1951a, p. 28) identify 'dynamic' modalities, which are concerned with the relationship which exists between circumstances and unactualised events in accordance with natural laws. We are concerned both with ability and the disposition of circumstances. Palmer uses the term 'dynamic modality' to refer generally to the modality of events that are not conditioned deontically. He considers both 'possible for' and also 'necessary for' - where there seems to be no deontic source, the necessity arising only from circumstances or possibly the subject's own disposition ('volitional' WILL) (ibid. p. 3-4).

Under 'dynamic' modality Perkins would also include 'boulomaic' modality - the modality of desire - as it is also concerned with the disposition towards occurrence of non-actual events, where specifically this disposition derives from a conscious human source (ibid, p. 17).

3.4.1 Necessity

(i) We saw MUST used where there is discourse-oriented modality. It also occurs when, in assertion, there is little indication of the involvement of the speaker -

What must I do here? [writing 'Atlantic' on map] (Simon 2:35).

The negative forms are mustn't which negates the event specified in the main verb and expresses the obligation not to act. The forms of NEED (don't need to, needn't) are used to negate the modality (deny the obligation).

(ii) Where HAVE (GOT) TO is not being used with speaker-involvement,

we have the meaning of 'circumstances compel'. Let us note that HAVE TO is more formal than HAVE GOT TO, and has the non-finite forms will have to, to have to, having to. Palmer (p. 92-3) would have us differentiate 'neutral' and 'external' necessity, but he fails to show how we would discriminate the two, so I would prefer to stick to 'circumstantial' necessity which is more explanatory. We would want to establish whether HAVE (GOT) TO and MUST are really interchangeable and not differing in meaning, as Palmer suggests they may be in some contexts -

Do you not have to wash it for so long if you have someone to lick it? (cake-mixture off bowl) (Simon 1:28).

(iii) A form with a milder intensity of constraint is NEED, which occurs as a modal and a nonmodal form. The former has the NICE properties (outlined in Chapter Two), although it will not normally occur in code or affirmation. The nonmodal form has non-finite forms, and -s form and occurs with to. The two only contrast in non-assertive contexts, where we get for instance 'Is it true that it is not necessary?' in Needn't I come? in opposition to 'Isn't it true that it is necessary?' in Don't I need to come? (Palmer, *ibid*, p. 104-5) -

We need to squash it in a little (Janet 1:5).

I have also included the other sense of NEED 'stand in need of, require' (C.O.D., p. 729, col. 1) for the sake of completeness. This simply takes a direct object -

You only need five? Don't you? (Simon 1:30).

(iv) It is not clear whether English makes any distinction between SHOULD and OUGHT TO in terms of its meaning. We have made remarks about these forms in the previous section; here we would be concerned with instances where there are circumstantial constraints. We could regard SHOULD as the conditional or unreal form of MUST in view of the fact that it has a weaker implication that the event actually would take place -

Should I cut them? (donkey-tails for colouring-in) (Simon 3:68).

In its past form should have, it implies that the event did not take place.

(v) We also have non-discourse-oriented uses of HAD BETTER, where it is not clear that the speaker is taking responsibility, but rather perhaps more concerned with hinting at consequences:

D'you need something to lean on? [...] I'd better use the new book (Janet 3:28,29).

Semantically related is BE BETTER where the circumstantial constraints which are preferable are mooted:

Do you think it would be better to carpet the house before I build it? (Simon 1:159-61).

We also have BE SUPPOSED TO occurring with non-speaker involvement -

Take up some bits which aren't spos'd to be there (Janet 1:11-12).

Closely related is the form MEANT TO BE which carries the implication that it may not be the case -

I think that's meant to be the sea (Simon 3:24).

A form with a clear implication of actuality is BE FORCED TO where the sense is plainly 'circumstances compel' -

I'm really forced to [struggle on with the remainder of the tube] until I can get some more glue tomorrow (Aileen 6:85-6).

3.4.2 Possibility

There are two verbs for possibility, CAN and BE ABLE TO. These need to be distinguished - the modal and its periphrastic counterpart.

(i) We can distinguish very broadly between a circumstantial use and a subject-oriented (ability) use, although we describe other types later. 'Neutral' or 'circumstantial' CAN is used to indicate that an event is possible. Palmer (ibid, p. 72) feels that the term 'circumstantial' is more appropriate if there is a clear indication of the circumstances in which an event is possible. I prefer to use the one term and this particular one, since it is more transparent. The appropriate paraphrase would be "It is possible for..." ('Circumstances make it possible for...').

For Perkins the basic meaning of CAN is that an empirical circumstance 'does not preclude' that an event occur (p. 61) and for Ehrman (1966, p. 22) 'nil obstat', but a positive definition is descriptively adequate for our purposes. There are many examples in our data:

You can probably see a wee bit of sand at the bottom of the Yellow Sea (Simon 2:58-9).

If we were in different places we could open it up and

put messages inside and fly it down to each other (Timothy 2:52).

This circumstantial usage can be contrasted with subject-oriented CAN, which refers to ability with animate creatures or more rarely, to the power or qualities of inanimates. Leech (ibid, p. 69-70) paraphrases this CAN as 'is able to' or 'is capable of', or when it refers to permanent accomplishment, is more or less equivalent to 'know how to'. In fact, we have also noted specific instances of this last paraphrase in our study.

Palmer finds there are few examples of ability CAN in the Survey, but this is a function of his corpus base: in contrast to academics, children spend a good deal of time talking about what they can and can't do! He also says that it is not always possible to distinguish the two uses - ability and circumstantial - and I shall have a lot to say in the following chapter about considerable problems of indeterminacy in my own data¹⁴.

I can feel it ... with my chin [radio-microphone] (Timothy, 1:4).
Have you heard about Rag, the dog in Ireland? They
couldn't keep him out of their helicopters (Timothy 1:27).

As was pointed out in the section above on the discourse-oriented uses, CAN is sometimes used not just to say what one could do or what is possible, but also to suggest, by implication, that action will or should be taken.

(ii) Since BE ABLE TO expresses possibility as well, we would want to know in which ways, if any, it differs from CAN.

It might be supposed that BE ABLE TO only refers to ability and is therefore always subject-oriented. This is the case in our own data, but Palmer cites instances of 'circumstantial' BE ABLE TO. BE ABLE TO would be used as a suppletive form for CAN which has no non-finite forms (i.e. *will can, will be able to). Also BE ABLE TO can be used in the present tense to indicate present actuality, to suggest that the subject can perform the action and does¹⁵. Finally CAN is less formal than BE ABLE TO. We have a small number of instances in our data -

I wish that Uncle Ian was here because he would be
able to do it! (Aileen 5:188,9).

(iii) For the sake of completeness we would want to account for the notion of 'ability' when it is lexicalised in KNOW HOW TO,

I don't know how to start this (Aileen 5:137).

We would also mention MANAGED which would be the past time lexical realisation of was able to and did -

I managed to move it without closing it because
there were no cars going (Simon 1:75).

(iv) There is also BE ALLOWED TO which has no speaker-involvement (and is therefore dynamic) and is the counterpart of discourse-oriented MAY. It really involves reported permission but the deontic source may be very vague -

Pretend we weren't allowed to sing any songs,
were we? (Simon 5:75).

(v) In his data Palmer finds examples of may and might used in what seems to be a dynamic sense. What is crucial in such cases is the necessity of being able to substitute can and could with little or no change of meaning -

We operate what might be described as a gigantic
tutorial system (SEU S.6.1C.8).

These instances could be explained by viewing MAY as the most neutral of all modals, used where there is simply non-factivity, the nearest we have to a subjunctive in English (Palmer, p. 157-60).

3.4.3. Boulomaic expressions

Boulomaic 'modalities' are identified by Rescher (1968) as relating to desire, e.g. It is hoped/feared/regretted/desired. Perkins treats these as a subcategory of dynamic modality, since they are also concerned with "disposition towards the occurrence of non-actual events". In this specific case, the disposition derives from a conscious human source.

Apart from the past participles exemplified above, there are also modal nominal expressions referring to boulomaic states, e.g. desire, fear, hope, willingness and lexical verbs, e.g. want, wish, would like, etc.

It should be noted that boulomaic expressions can be used with conveyed implication meanings of offers and requests¹⁶, for example. Note the following contrasts with a simple boulomaic statement -

- (a) I would like to have my hair cut (statement).
- (b) Would you like to cut my hair? (offer).
- (c) I would like you to cut my hair (request for action).

The two latter uses would of course be coded as discourse-oriented in my analysis.

3.5 WILL, SHALL and FUTURITY

3.5.1 WILL and SHALL

We depend in this section very largely on Haegeman's (ibid) work on the use of WILL and the expression of futurity in English. We will indicate where we are using other workers' insights.

A central issue is whether the many interpretations of WILL should be treated in terms of lexical or grammatical polysemy or whether they can be treated in terms of one basic meaning. Perkins (ibid) offers a core meaning for WILL and SHALL, i.e. which is neutral between an epistemic, deontic and dynamic reading, satisfied that the use of WILL and SHALL to refer to future time is secondary to a more modal function. Along the same lines, Haegeman urges that much will be gained if 'futurity' is no longer considered the central semantic component of WILL. For her, 'futurity' can be reinterpreted as being a contextually determined specification of the basic meaning of WILL.

This basic meaning is tripartite:

- (i) 'nonfactuality': this relates to objective noncertainty, contingency, potentiality, etc.¹⁷
- (ii) 'actuality': speaker-based certainty, he himself assumes the events will occur. This certainty is bounded off by the non-factuality inherent in all modal utterances (i.e. (i)).
- (iii) focus on the event-time, i.e. conditionality¹⁸.

1. The basic framework yields pure 'future' WILL, without any volitional reading -

Will it not need anything to hold it, Mummy? (Simon 1:9-10).

That'll wake all the family up, won't it? (Simon 6:78).

We have kept 'futurity' and 'volitional' WILL separate for the purpose

of our codings, but we would agree with Haegeman that 'volition' is a feature which is contextually determined.

2. The volitional reading of WILL is thus a contextualised variant of 'futurity' WILL. The different readings have been illustrated by paraphrases in terms of volitional verbs like want, be willing, agree, intend, none of which are entirely adequate because of its implication of actuality -

I know, I've still got some juice left, I'll just pour it out (Aileen 2:12).

Mum will get mad at us - No, she won't, she's not looking (Aileen 4:64).

The possibility of a volitional interpretation is determined by the nature of the subject and of the proposition, which must refer to intentional activity¹⁹.

3. With WILL of insistence, there are the features of volitional WILL together with an insistence on actuality (in contrast with contextual expression of nonactuality or doubt about actuality). These are features of the strong volitional verbs determine and insist -

Yes, and you'll fool about with my Rubik things (Aileen 6:57).

4. The use of WILL for omnitemporality is common in Standard English but mostly in written texts. Here the sentence with WILL typically lacks a precise indication of the future time. The WILL is replaceable by CAN or a non-modal present tense. While traditional accounts would suggest that there is a clear-cut distinction between the categories, Haegeman suggests that the distinctions are mainly context-bound.

'Timeless truth' is associated with generic subjects²⁰ -

Oil will float on water (Palmer, 1974, p. 112).

'Habit' is mostly related to specific subjects which are animate -

Grandma always has some trifle or cheesecake so that's why Fiona will always eat up her dinner there (Aileen 3: 78).

'Capacity' or 'disposition' is usually applied to non-animate specific subjects²¹ -

This hall will seat 500 (Haegeman, p. 248).

The first and last forms are not significant in our analysis.

5. On Haegeman's unified account SHALL, like WILL basically registers 'non-factuality' and 'actuality' with a volitional reading based on contextual semantic components²².

For 'pure future' SHALL, the traditional view is that shall is the form occurring with first person I and we, and will is the form that occurs with second and third person subjects. However this view is now seen to be prescriptive as it is generally recognised that will occurs freely with I and we even when it indicates futurity. Shall would occur in more formal style in Standard English and not at all in Scottish English, from which it has disappeared. Palmer moots but one example of SHALL with the meaning of pure futurity -

My babe-in-arms will be fifty-nine on my eighty-ninth birthday... The year two thousand and fifteen when I shall be ninety (SEU S.5.5.11).

In many cases I shall... may indicate not simple futurity but be a promise and therefore discourse-oriented. However the use of the progressive excludes this meaning, indicating pure future:

I shall come tomorrow.

I shall be coming back tomorrow.

6. We have already seen a use of would to indicate tentative epistemic meaning. The form would also be used in a sequence of tenses, and also in the past tense with the meanings of volition, capacity, habit and insistence -

She told me she would get them (Aileen 2:48).

7. An important use of would is in unreal present and past conditionals (would have) which may be more or less explicit. In this usage would and would have are not directly related to basic (+/- volitional) WILL. The events referred to are unreal:

If you worked in metres, it would be 50 to 100 (Simon 4:23).

There are examples of would where the conditionality is less explicit:

And it would be quite hard and terribly funny to play cricket like this (Timothy 1:52).

But that would have to be out of any planet's atmosphere (Simon 5:14-15).

8. While we need to make no more category distinctions for WILL, it is useful to make a remark about conditionals with WILL. In the if-clause it is generally recognised that only volitional WILL will occur:

If John will babysit, we can go out.

If one needs to refer to the future, we do not use futurity WILL but simply the present (+/- progressive), non-modal form:

If John comes, we can go out.

Any of the modals can be used in the main clause:

If John comes, we will/can/must/should go out.

3.5.2 Alternative expressions of futurity

1. The form BE GOING TO seems to perform many of the same functions as WILL. In written texts it is largely avoided as too informal, but occurs frequently in spoken language: so this is where we are to look for the contrasts. The meaning of BE GOING TO consists essentially of the meaning of IS and TO together with that of GOING which relates the occurrence of the event specified in the infinitival complement to a currently existing state or process which is seen to be instrumental in bringing about the event (Perkins, 1980, p. 117). This 'current orientation' (Palmer's term) allows BE GOING TO to convey nearness without a time specification, something which is not possible with WILL.

A second contrast with WILL lies in the observation that BE GOING TO suggests that the future is in no way conditional, it is incompatible with hypothetical conditions. Contrast:

Don't sit on that rock. It'll fall.

Don't sit on that rock. It's going to fall (Palmer, 1974, p. 164).

There is a sense of inevitability about the second pair. Binnick (1972) and Palmer (1979) would have it that WILL is elliptical, that there is always an implied condition in its use. The nature of the circumstances is left completely vague with WILL, where a current ongoing process is specified with BE GOING TO. I would disagree with Palmer that BE GOING TO suggests no volition and concur with Haegeman that both volitional and non-volitional uses ²³ are possible: these are shown respectively, in:

Mum, are you going to sell your pushchair? (Aileen 3:16)

That's going to be a wee bit of the Red Sea (Simon 2:50).

2. The form BE ABOUT TO is similar to BE GOING TO in that it is used to refer to future time and incorporates an item originally used to refer to spatial relationships (TO). What distinguishes it is that the event referred to is regarded as imminent, although it is allowed that the event may be forestalled:

We're just about to make you a slide (Simon 5:111).

3.6 Modal lexical verbs (cognitive)

There is a small number of lexical verbs we are interested in, essentially because they express the notion of non-factivity inherent in all modal expressions. They are included in the class of what are called propositional attitudes (i.e. verbs denoting belief, doubt, intention, etc.).

The use of a factive predicator commits the speaker to the truth of the proposition expressed by the complement clause in such statements as She knows that Cape Town is the legislative capital. In contrast using a non-factive predicator commits the speaker to neither the truth nor the falsity of the proposition expressed by the complement clause, as foreexample in She thinks that Edinburgh is the capital of Scotland²⁴. I am particularly interested in these superordinate verbs with first person singular subject, which do not necessarily have to occur before their complement, but may be inserted at the middle or the end of the complement sentence. These verbs refer to a mental state or attitude (hence the non-factivity) and include BET, DOUBT, EXPECT, HOPE, SUPPOSE, SUSPECT, THINK, WONDER.-

- (a) Let's see, that's everything fallen out, I bet (Janet 5:57).
- (b) I doubt you'll get wall paper that colour (Aileen 3:46).
- (c) I wasn't expecting yellow (Aileen 5:195).
- (d) Oh well, you can do it in the corner, I suppose (Janet 4:73-4).
- (e) I think he might be coming (Timothy 2:10-11).
- (f) I wonder how big it's going to be (Simon 3:7-8).

These examples show several other characteristics. First, these verbs are generally used to express epistemic modality, but can also be used to express discourse-oriented modality (d). These verbs may be subject to transferred negation (c). They may occur with other elements

expressing modality (e).

We have also included in our analysis, for the sake of completeness, the factive predicators KNOW, BE SURE. In their negative forms they are of course non-factive:

Mom, I don't know how she can play with a doctor's
set and a teaset at the same time (Aileen 3:22).

I'm not sure I think you are [a grownup] (Aileen 3:43-4).

The different kinds of modality are summarised with examples in Tables 3.1 - 5, presented below.

EPISTEMIC MODALITY

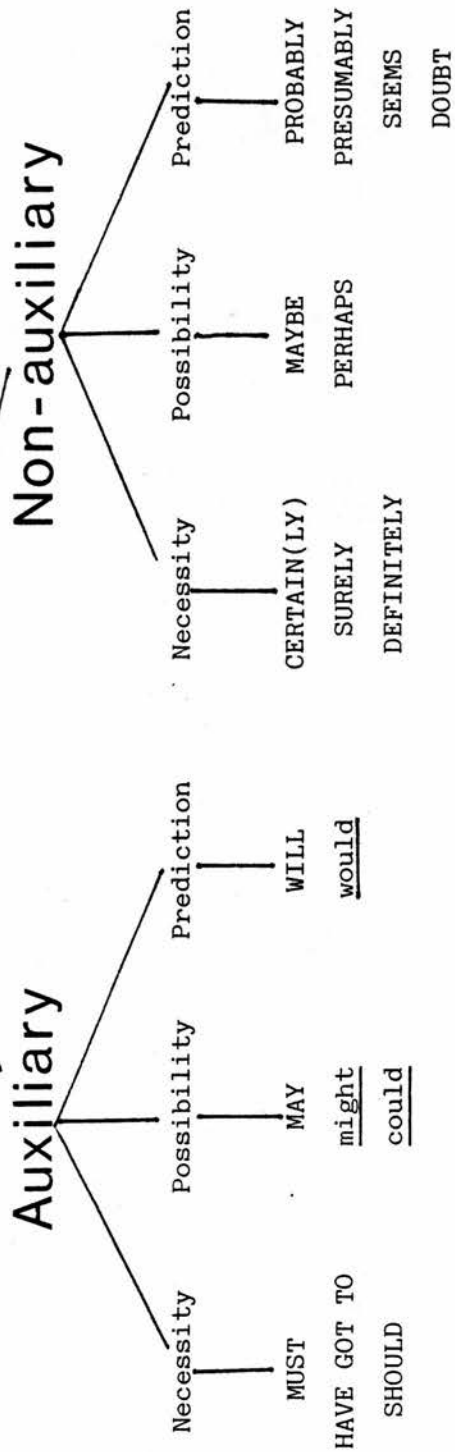


Table 3.1: Summary of Epistemic Modality

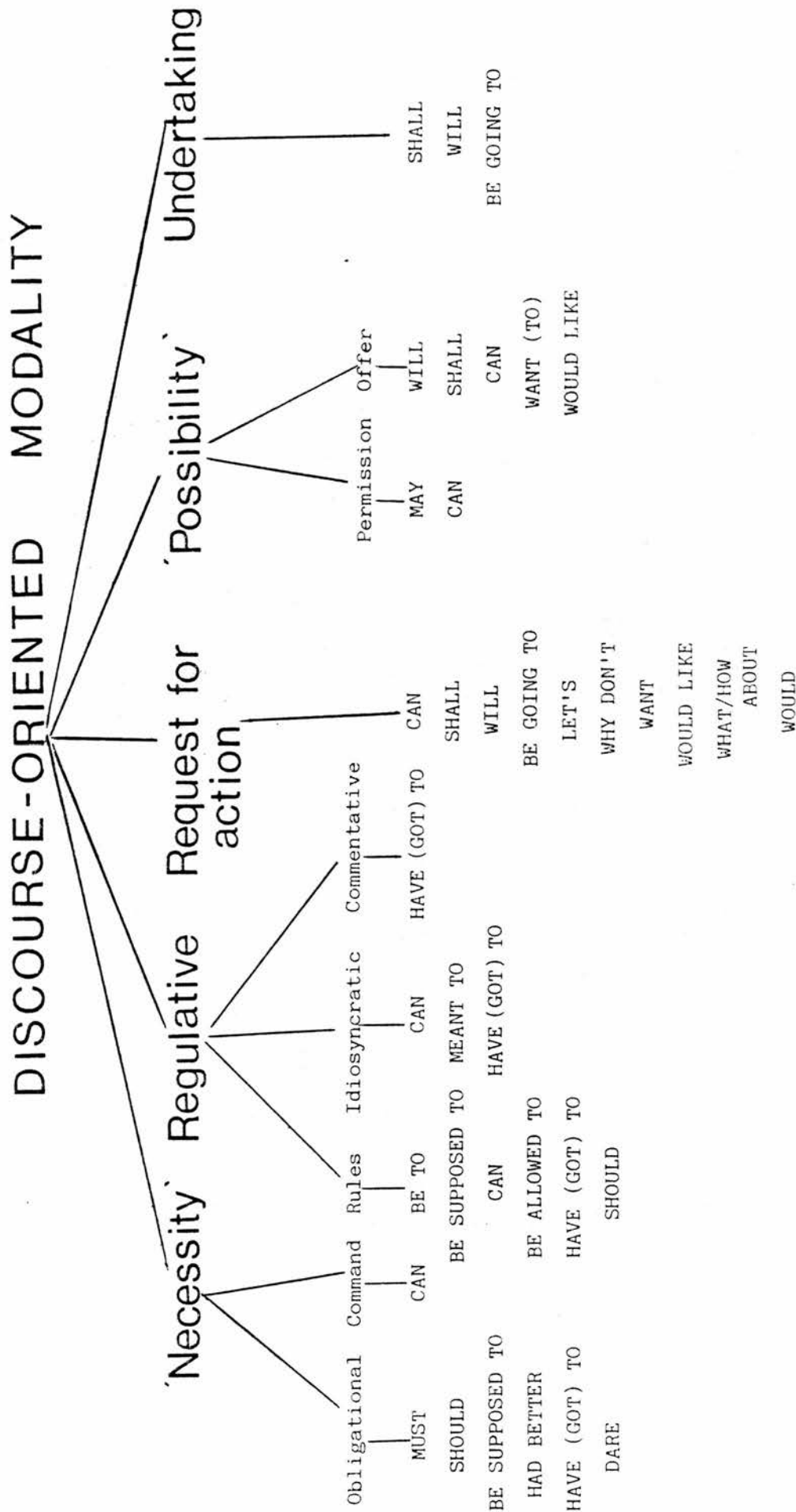


Table 3.2: Summary of Discourse-Oriented Modality

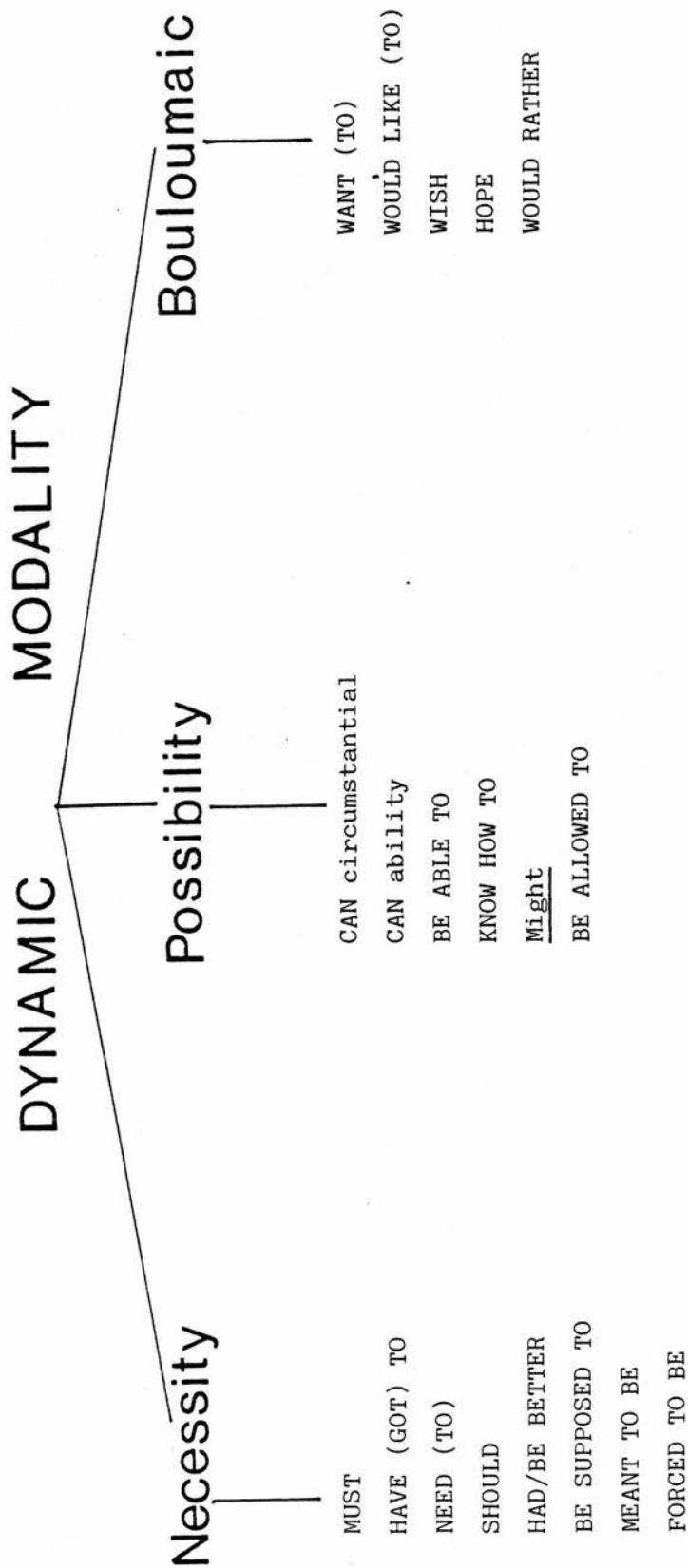


Table 3.3: Summary of Dynamic Modality

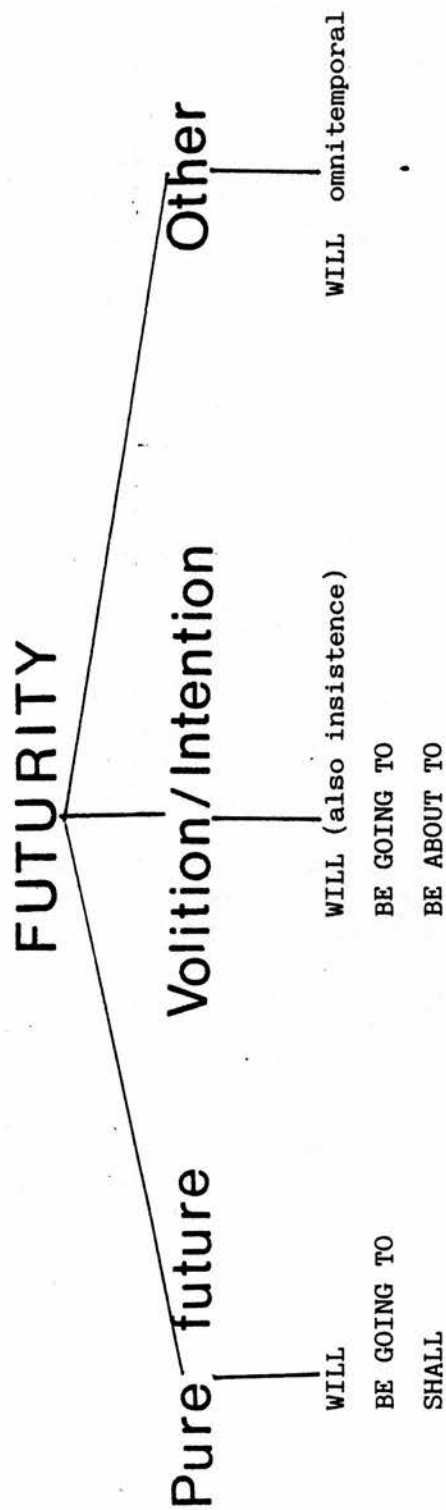


Table 3.4: Summary of WILL/SHALL and Futurity

COGNITIVE LEXICAL VERBS

THINK	WOULD SAY
SUPPOSE	BET
WONDER	BELIEVE
EXPECT	BE SURE
DOUBT	KNOW
SEE	SUSPECT

Table 3.5: Summary of Modal Lexical Verbs

CHAPTER FOUR: THE CASE STUDIES

4.1 Introduction

Previous observational study of the expression of modality has been with large numbers of children. Perkins (1980) for example, had 96 subjects: however, here the sum total of speech recorded is 10 minutes for each triad. In using such a design we could not say that we are gaining a comprehensive picture of any one child's competence. It may quite reasonably be argued that it would be quite impossible to gain insight into the competence of so large a number of children. This is indeed so: language research of this kind is both slow and costly.

The present study is of quite a different kind: in this research the initial focus of interest is on four case-study children, followed over a period of fifteen to eighteen months. One of the aims of the present study is to gain insight, in some depth, into the language of children, with our specific focus. It is impossible to do this with anything more than a minute number while researching single-handed. So I had to be content to explore the parameters with only a few, bearing in mind that we are counting the cost in terms of reliability and also perhaps, in terms of external validity. We are as much concerned with individual differences as with general developmental principles, and we will have something to say about both.

To take observational data is to take diffuse and general data: this means an inevitable complexity in description if both the form and function of all the uttered modal expressions are to be accounted for. And some principles and generalisations are to be extracted from this. Some narrowing down of focus is seen in the language tasks (reported later) although even this is relative. The case study children all do the tasks, so showing to some degree the relationship between the quality of spontaneous language and performance of the tasks. (A discussion of their performance is found at Appendix Three; this would be read with fullest understanding after Chapters Five and Six.) In the end I would want to make the naturalistic and experimental data complementary. A discussion of the former would set the context for a discussion of the latter. In particular I would hope to justify categories for the description of the modal system from the observational data which would constrain our analysis of the language

tasks, particularly in analysing children's definitions, or partial-definitions of the senses of modal auxiliaries.

There is a classic problem with using observational, frequency data. Linguists call it the 'projection problem', psychologists would say that we cannot be sure that the samples of speech collected from each child are fully representative of the child's language system at the period of time under investigation. There is no ready solution to this problem: it is necessary to point it out and sufficient perhaps to say, that a solution will lie partially in the direction of being able to use sensitive elicitation techniques. However it is clear that the modal system is a ground richly sown with forms and expressions, that partially overlap in meaning and so it would be possible to express one thing adequately in a number of different ways. We cannot thus exactly determine a child's response: let us work then, with what we are given. We at least must try to sample the behaviour under investigation as adequately and comprehensively as possible. The probability of the child displaying mastery of a range of forms and meanings is presumably increased with the number and length of recordings though perhaps this is partially a function of the range of speech situations sampled as well. However there is no solution to the problem raised by Wells (1979) that it is possible that a child may master a particular form but not provide any evidence of such mastery until a later date. If a child does not use a form we are bound to say that he has not yet mastered it, although we may not always be accurate in saying so.

I have particular interest in the language of children at the stage where we have reason to believe it has the characteristics of a rule-governed system, the stage where also, we may ask children to try to explain something about the usage of these forms. Studying this period should justify building a model of a rule-governed modal system which might have some approximation to 'psychological reality'. This model should be falsifiable by linguistic judgements made by children. To this extent we would be protected from criticism of the sort Matthews (1975) directed at Roger Brown's (1973) work.

While previously psycholinguists were concerned to verify or falsify details of linguists' theoretically espoused claims and descriptions, now they are more concerned to construct theories of greater psychological cogency, with concomitantly increased 'descriptive

adequacy'. I hope to make a contribution which has some descriptive adequacy (in the sense of Chomsky (1965)).

4.2 Design

4.2.1 Subjects

Four children were selected, the two older children because their teacher described them as 'interesting' when asked to recommend children for the study. They were in Primary Three 1980-1, Primary Four 1981-2. Aileen (born 5.11.1973) and Timothy (born 28.7.1973) are both the eldest children of professional, Scottish parents with the mothers not going out to work. Janet (born 12.11.1975) and Simon (born 4.2.1976), the younger children, were selected slightly differently. A number of parents had volunteered their pre-P1 children to be part of the project, Primary One 1980-81, Primary Two 1981-2. I visited six children at home and then picked the most 'verbose' boy and girl. They both have a similar background to Aileen and Timothy, but both mothers work part-time (school hours). Janet's parents are separated, she has no siblings, and lives with her mother. This means that she has probably been exposed to a greater proportion of adult speech and certainly could mimic adult attitudes and stances quite comically. It was hard to establish whether there were any language accelerating forces in her situation, but certainly there seemed to be no deleterious effects at all.

All four are all competent children at school. The first three have undergone no formal testing and show no specific signs of special giftedness in their schoolwork. Simon has been tested by an educational psychologist and shown as 'gifted' (I.Q. 145+) but his special aptitude has not yet revealed itself in his school performance. This is partly I think because of his being born in the last month of that year's intake, his shyness at school and his real reluctance to push himself forward in any way. It must be stated in a preliminary way that all the children performed somewhat better than the other children in their year on the language tasks overall. To that extent they could not be regarded as in some way 'typical' of their year. Also, the average for the year is somewhat above the performance of a 'normal' or average school population (as evidenced by reading age scores, to which

I had access).

It would of course have been better to have taken cases from both extremes for investigation. However, no aspect of this thesis can be seen as normative. It is of essence exploratory. Once the variables of interest have been more specifically identified more normative study can be undertaken. The phenomena of interest are so broad and adequate analysis needs such depth of detail, that it must be left for another day or another investigator to gather data specific enough to be of interest to educationists and speech-therapists.

4.2.2 Method

The children were visited at home, six times over the period of approximately sixteen months. Each session was approximately 1½ hours long, recorded on a Uher tape-recorder from a radio-microphone which the children wore, usually pinned into the large pocket of the child's sports-type top. Since each child had given the undertaking that he was going to 'help' me with my work, there was never any real resistance to wearing the microphone. Occasionally a child would take delight in yelling or blowing through the microphone to tease me as I'd said that either of these activities would hurt my ears when I was transcribing! If there was a visiting child, the children enjoyed the prestige of being special and 'having to' wear the microphone.

The advantages of wearing a radiomicrophone are that one is guaranteed audibility of all the child's speech, and also that the child has complete mobility round the house and garden and so is not artificially constrained in his movements. While a videorecording of each session might have seemed desirable (following Hughes et al, 1979) I felt that the data from this might be less typical than need be because the intrusiveness of the machinery might increase the child's self-monitoring. However self-monitoring wasn't entirely absent in this design because the microphone is surprisingly bulky, and besides, the children had my presence to remind them that they were being observed. Occasional remarks served to indicate that the children were aware of being recorded, for example, telling a friend off for talking too much, and taking up too much of the recording.

In the method as initially conceived, I, as non-participant observer was to remain in the same situation as the child, noting down

as far as possible the contexts in which the modal expressions were uttered. However, it became clear that the children considered this extremely odd behaviour: if somebody was interested in them, why didn't she talk to them? It seemed also to make the mothers very self-conscious, in a situation where already they felt that they were 'expected' to talk to their children when they might not necessarily usually have much to say to them. Because I saw the children at school as well I grew to know them better and it seemed unnatural not to talk with them when I visited them at home. It is not clear how and in what way my talking to the children might have biased the data: however to the extent that I was interacting with the children rather than simply listening objectively and asking predetermined questions, any bias was completely subconscious. It is not clear how any such bias could be isolated ; in any event there was no effect due to my asking specifically language-oriented questions.

I was, on barely half a dozen occasions, 'brought up short' by unusual usages (such as in Janet's data). In these instances I tried to ask clarificatory questions about the sense in which an item was being used. It must be said, finally, that I never engineered any game or activity, and participated only when a child wanted me to. This means that there are tapes on which my voice scarcely registers, while on others I am heard intermittently as a player in a game, or else incidentally in a conversation. Detecting bias in this variability may well prove both difficult and unproductive.

Afterwards the tapes were partially transcribed. All the utterances containing modal expressions were transcribed together with whatever other utterances and extralinguistic information was deemed necessary to clarify the nature of these modal utterances. Occasionally the pronominal referents are not clear, when I wasn't present during all the conversation, but the amount of information lost in this way I see as marginal. Information about the relationship between the use of modal expressions and the rest of the 'non-modal' language has not been retrieved; this was not considered to be valuable enough information to justify the massive additional effort it would have entailed over thirty-six hours of recorded material.

The modal expressions were then coded in terms of the categories set up in the previous chapter: these codings are cast in frequency

tables which can be seen in cumulative form below. From these tables are derived all the smaller tables which are also presented for description in the following section.

4.3 Results

The data generated is extremely complex and to facilitate clear understanding we have broken down the description into a number of sections.

In the first part, we describe linguistically interesting forms the children produce. (Brief summaries of each session are to be found in Appendix Four which may help to set these usages in fuller context.)

We then move from more anecdotal individual description to details of frequencies and types of usage under each kind of modality, for all four children together.

Statements about the relative use of different kinds of modality follow, and a number of other questions are addressed to the data. We would want to be able to characterise each child's performance.

Finally we will draw together the two sections of results into a summary of linguistic and psychological observations.

4.3.1 Interesting usages

4.3.1 (a) JANET

Session One

Janet is rolling pastry, she finds that this is not working satisfactorily and says:

We'll need to put it on here and roll it up
again, won't I, won't I? (1.8)

The change of person in the tag suggests that she's changing from making an observation about the general necessity to trying to draw in the listeners to acknowledging that they are also monitoring what she is doing.

Janet does not always take easily to submitting to other people's

authority. This comes out when she and her mum are using cherries for decorating. The following sequence occurs:

Janet: Please may I have some? (1.30).

Mother: No you can't, they're too good.

Janet: Yes, I can! (1.31)

In this explicit denial of the prohibition - which is inappropriate considering their relationship - she is also implying I am going to.

Shortly after this Janet uses a form that is marginal but interesting - she is (ostensibly) washing the baking dishes -

Mother: Here, watch this, you're gonna have too much water: you're supposed to be washing things, not playing with water.

Janet: Gotta squeeze it (1.40).

Here Janet is invoking a possibly unconsidered, certainly unascrbed deontic source to justify what she is doing: this is certainly a deontic statement - reporting an obligation¹, which is moderately rare in the children's data. This particular instance has a kind of monitoring function unrelated to objective compulsion in the environment. The monitoring function is an extremely powerful one in Janet's speech overall, at least impressionistically. It seems in general that Janet is intent on 'holding the floor' all the time, even if nobody is specially attending, and maybe even if only to exclude the possibility of other folk talking.

Towards the end of this session Janet uses a form repeatedly which seems to be indeterminate. She and her mother are walking round a pond while I remain behind at one side with the recorder. Janet wants to know why I'm staying there. Her mother explains that I want to see how far I can hear from, that I'll see how far they can go before I lose them. Janet is fascinated by this portrayal and calls nine times (at intervals):

Can you still hear us? (1.74)

It is not clear whether she is asking whether I am able to hear (subject-oriented reading) or whether it is possible for me to hear (circumstantial dynamic reading). Since I have made a procedural decision to opt for that latter reading if there is no clear implication of ability, these utterances are seen as neutral. It may be that she was simply asking Do you still hear us? (Donaldson, 1982) where the question has weakened from one of contingency to one of fact.

Certainly I would hesitate before asking a four-and-a-half-year old to clarify which sense he intended. The adults I have described this example to have only said "Oh yes, I see" after I had explained the possible senses. There seems no ready paraphrase for the neutral reading that very young children could understand.

Session Two

Janet here makes an interesting extension from 'power' to 'volition'. She is pulling apart Lego pieces, so that she can make something new -

They won't come off, they don't want to come up (2.6).

Here we see the negative WILL of 'power', followed by what could only be called a volitional use in want to. While 'power' is little more than volition applied to inanimate objects, to indicate how such objects will characteristically behave (Palmer 1979, p. 110) it seems to be established as an independent category. I'm not sure whether we would be justified in invoking a 'power' use of want to, so perhaps it is best to treat this instance as one of metaphoric extension.

In this session Janet shows some usage of a subcategory of deontic usage which I call "idiosyncratic regulative". Here she imposes on the other participants constraints which are both constitutive of the game and apparently externally motivated. While we were playing a game matching pictures and words, she came out with the following:

You've gotta have your cards turned this way.

You've got to try and read them from this bit.

You've got to close your eyes when you're doing it

[when reading!]

You've got to try and tell us what it is. (2.32-5)

As can be seen, this usage is usually realised as HAVE GOT TO but there is also this example:

I should have all the rest, Mum [of the cards] (2.31).

Janet makes some use of a form closely related to the deontic statement reported above, this time not merely to justify her own actions but to describe other's. In this session it is most clearly seen as Janet is monitoring her playing with a paper doll, reporting as it were, obligations which explain the doll's actions. Once again, the deontic source is indeterminate as will clearly be seen in the following exchange with HAVE GOT TO:

Janet: She's gotta wear a hat and she's gotta wear this one (2.48-9).

Obs.:') Why's she got to wear a hat?

Janet: Because.

Obs.: That's no reason.

Janet: She has

Obs.: Just 'cos?

Janet: 'Cos she has.

Obs.: I don't think that's a very good reason at all.

Janet: 'Cos she has. [sings] 'Cos her teacher asked her to, 'cos her teacher asked her to. There you are, the teacher asked her to.

Obs.: I see, because the teacher told her to.

Another kind of 'commentative' use appears a little later with BE GOING TO. Here the usage which would normally be used to report intentions is almost certainly obligative, but once again with a monitoring function:

Now Mummy she's going to play with her baby (2.69).

She isn't going to bed! She's going to play with her dolly (2.70).

The 'idiosyncratic regulative' can be clearly contrasted with a more 'legitimate' use of HAVE GOT TO in terms of circumstantial constraints, as in the following example where Janet is building a roof with her Lego blocks:

Janet: Now we want little red ones with lids on, please Mummy they've gotta be halves I'm afraid they hafta be.

Obs.: Why do they hafta be?

Janet: Because they've got to be able to go along there (2.87-91).

Another example, more explanatory of the 'idiosyncrasy' involved is given in the discussion of examples from Session Four, below.

Session Three

Janet shows the equivalence of SHALL and WILL of volition when, as she finishes making stencil drawings, on two pieces of paper:

.... I'll get a piece of sellotape, shall I? (3.55-6).

') = Observer

These two forms could be treated as WILL of 'volition' and SHALL of 'offer', except that, as a main verb plus tag, the modals should have identity. Here I would take the predominant illocutionary force of 'offer' to characterise both forms.

There occurs an interesting instance of indeterminacy between CAN of 'permission' and CAN of 'command':

Observer: Shall I do Noddy next?

Janet: No, you can have my Noddy (3.57).

There is almost a sense in which Janet is offering me her Noddy, but in point of fact the tone of voice is rather bossy and really the implication is that I am going to have her Noddy. So, I have categorised it as 'command'. (There are more instances of 'command' discussed at Session Six; see also the CAN of 'offer' described at Session Five.)

Janet also uses a form which ostensibly is a futurity SHALL yet its import is a request for action. As we're finishing our drinks Janet is anxious to solicit players for an (as yet to be determined) game. She says:

What shall we play? What shall we play? (3.77-8)

Shall we play Club Biscuits?! (3.80)

[trying to attract the adults' attention].

In the first two instances, this type of utterance would only be used with adults when it is established that people actually do want to play and the question is to which game will be played? However, the illocutionary force in this case is to both establish the listeners' consent (presupposing the prior use of Shall we play a game?) and get a game specified, all in one step. It would not be very polite for an adult to move both steps at once. So this futurity form carries slightly unusually a conveyed implication as well².

There is another suggestion for a game in the following utterance:

Let's see who'll get all these pennies if I throw them (3.71-2).

While it would seem at first glance that we are dealing with the future WILL of consequence in a conditional clause it is slightly more complex. It is not a 'true' conditional, the "if" really means "when"; the let's see constitutes a request for action and it seems that we are really dealing with an 'obligative' WILL cast more 'remotely' in the third person. What Janet is in effect saying is I want Mummy and

Carol to try and catch these pennies when I throw them. § In taking out a new game, Janet uses two forms which would have to be catalogued as 'obligative' and 'volition' but really essentially perform the same function:

We'll take those. I'll do it first [takes out new game]

(3.91-2).

The first WILL is 'obligative'. However since one does not commonly lay obligations on oneself, there is not an 'obligative' use in the 1st person singular. In 3.91 we have the 1st person plural, and this includes people on whom to lay the obligation. I'll (3.92) - would usually be coded as 'volitional'. However, although two categories are invoked here, we do have a unique situational fact underlying both, that Janet is determining whatever is going on in the situation: determining what the other people do and imposing her own actions on them as well. This latter would be in contrast with the 'volition' in which our own intentions are independent of and not determining directly other people's behaviour (although of course it may unintentionally do so). A similar sequence occurs in Session Four and we find the same phenomenon with Aileen. It quite clearly only occurs when the child is directing the whole situation. It is much rarer that Simon and Timothy cast themselves in this role.

Session Four

A very similar phenomenon arises, not surprisingly, with BE GOING TO. Here we have a subject-oriented use with the first person, contrasted with an 'obligative' use with the second person, following immediately afterwards. Janet is organising the start of a board game with myself -

I'm gonna have three and you're gonna have two,

okay? (4.54)

(The form 'okay' appears to occur when Janet is "bossing up" the other participants and she wants an explicit acquiescence to her authority.) The first BE GOING TO could be taken as "the future culmination of present intention" (Leech 1971, p. 54) and the second as derived from this meaning. However we would want to say that in both cases it is the future culmination of Janet's intentions.

We need a 'strong volition' sense, but it's not clear whether we could

justify a separate category; in any event one would want to show the relationship this has both with 'intention' and 'obligation'.

We have here an example of the shaky deontic basis of the 'idiosyncratic regulative' usage. Janet is drawing a spirograph -

Now I'm going to make a pattern,

You don't hafta use these ones,

You have to use these ones if you want (4.7-10).

Perhaps indeed this is an example of performance error: Janet may well have meant you can use these ones if you want. However I am convinced rather that she uses HAVE TO rather oddly: note for example, a little later when we're playing Ludo:

Observer: ... start another one, that's a silly thing to do.

Janet: You don't because you have to do that (4.106).

Observer: Do you?

Janet: You don't have to if you don't want to
though: but I want to (4.107-9).

She appears to be confusing what is possible with the rules with what is necessary with the rules. However I would prefer to see it as simply invoking rules - existing or self-constructed - to her own advantage, unless challenged. She is quite capable of expressing what is permissible within the rules:

Mommy you're allowed to cross your own as long as you
count yourself.

You can move that one if you want (4.120-1).

There is another example of contention over rules when playing Snakes and Ladders:

Observer: Oh my dear, you'll have to go down, won't you?

Janet: You don't have to if you don't want to (4.154-5).

Observer: Oh yes, you do I'm afraid.

Janet: I don't want to (4.156).

Observer: I'm sure you don't want to.

It seems to me that in this session Janet is working with a relatively simple equation -

I want to = I hafta,

I don't want to = I don't have to.

Session Five

Here we find, briefly and simply, an example of a WILL of 'volition' alongside a straightforward imperative, paralleling the 'volition' and 'obligative' uses found in close relation (mentioned in Session Three):

I'll look for a bit of a barrel, you look for something else [pieces of a puzzle] (5.22).

This is the only session in which Janet uses the non-standard forms of can't:

I cannae find the end of 'meat' (5.12).

I cannae find the 'm' for 'meat' (5.14).

I cannae find the end of 'suitcase' (5.15).

I cannae get through the hole (5.90).

I can only suspect that Janet was "messaging about" with the form that day, since I never heard her using the form again, at all, nor any other non-standard forms (although it appeared that she'd been widely exposed to them at nursery).

We have an example of the CAN of 'permission' being extended into something like an 'offer'. Janet has returned from the kitchen after some surreptitious activity which turns out to have been cutting bits of cheese:

Carol you can have that, Mummy cut it (5.27).

(There are other examples of this use in the preceding and following session.) While I can find no reference for the 'permission' to 'offer' shift with the second person subject in the literature, I would not want to leave it as 'permission' since no permission has been requested, nor describe it as 'command' as the force of this is too strong. After all she is not saying I have to have it.

In Standard English, MAY is the form used for giving permission, at least in formal contexts. However we have only one in our data, and it is precisely in such a formal (albeit make-believe) situation. This is where Janet is the teacher and myself the pupil:

Observer: Can I have another name?

Janet: Another name? Yes, of course you may (5.51).

Notice that this is not an echoic use, since I myself used the less formal alternant CAN. We refer again to her capacity for mimicking adult forms.

Session Six

We come up again and again against the problem of distinguishing between circumstantial possibility and ability (where the latter is subject-oriented). While I did make a procedural decision (as described above) about the coding, nevertheless there were still examples which were difficult to decide. I was able to assess the reliability of my judgements when I checked my original codings (which I did across all the data): I would find myself disagreeing with some original judgements of CAN (also WILL, about which I speak elsewhere). It has been suggested to me (Barrow, personal communication, 1982) that children might take the ability reading as somehow more primitive or more dominant, understanding that the actualisation is dependent on circumstances. This neatly dovetails the two meanings. Consider for example what Janet says to Juliette when she is helping put a clean borrowed dress on Juliette (since she spilled juice on her own):

Juliette, hold that, then I can do up your hook,
and then the zip (6.10).

It is not a question really whether Janet is actually capable of doing up Juliette's dress, but I would want to allow that the focus is on arranging the contingencies so that she is able to do it: this is shown by the conditional form. Hence the neutral reading would predominate. However, the modal here isn't voice-neutral: it would be distinctly odd or unlikely passivised. This would suggest in Palmer's (1979) terms that it is subject-oriented. The question is obviously a messy one.

There are isolated examples of sophisticated forms, which are of passing interest here. Janet's extended time with adults has ensured she is able to mimic adult behaviour in a way which seems comical and quaint: perhaps these linguistic forms are also the fruit of this experience:

Janet: Juliette, I would keep your biscuit till afterwards
if I were you [sitting eating lunch] (6.18).

Observer: Why would you?

Janet: 'Cos it's nicer.

Another rather mature form occurs when they are playing again:

Janet: I'm only letting you have it because I like you
[plasticene] .

Juliette: Because I'm going to have a holiday with you,
aren't I, sometime?

Janet: I wouldn't have told you to have a holiday with
me if I didn't like you, would I? (6.55)

The form wouldn't have³ is a past conditional form, but because of the negative the net force is an actualised past (I told you because I liked you). Janet makes comparatively little use of would unlike Simon, as we shall see below.

In dealing with conventional implication Palmer (ibid) distinguishes between deontic CAN of permission in the interrogative with the first person which has the force of a request for action, and deontic CAN of permission used in assertion with the second person which has the force of a command, or sarcastic suggestion. We have examples of this with Janet, the former at 6.99 and 100 and the latter at 6.101, while they are playing 'school' -

Can I have all your boys Miss Keymer? (6.99)

Can I have all the boys in the whole wide (6.100)

school and all the girls can go to Miss Keymer (6.101).

It seems that these two types are equivalent in their perlocutionary effect insofar as they are both requests for action but different insofar as CAN 'command' would indicate directly a relationship of authority. Another similar form could be used as slightly more polite, e.g. Girls, can you all go to Miss Keymer? This is dynamic CAN, second person interrogative, and is slightly less waspish.

The waspish element shows clearly in another idiomatic use: Juliette is mooting the possibility of (pretending to) plant plants in their hideout. Janet replies tersely -

You can, I'm not (6.148).

Implicit is if you want to, but that's a silly idea.

There is a much earlier usage in which Janet softens the CAN of 'command': she is dressing paper dollies:

I think I'd better dress this: you can dress
the next bit, please Mummy (2.54).

This is softened almost to the force of the conveyed dynamic use by please.

Near the end of this session we have what I would consider to be one of the two instances of 'futurity' WILL with the first person singular subject, when Janet gives a reason for her refusal to take

up Juliette's suggestion for a game:

Juliette: I've got a good idea, I know, shall
I be a flower? [...]

Janet: No!

Juliette: Why?

Janet: I'll be back in a few minutes Juliette,
I'm just going in to change (6.139-40).

It is reasonably clear that this is not a 'volition' use of WILL, indeed the volition would seem to be marked in just going to. However, an undertaking reading is also possible. There is further detailed discussion about first person subject WILL with Simon, Session Six.

This brings us to the end of describing the interesting usages we found in Janet's data. There are two points to note before we proceed to looking at Simon's data.

First, that I have been concerned to spell out and exemplify some fairly marginal categories which have really only been constructed for this study. But we hope it will be shown that they are reasonably productive and account for some of the other children's linguistic behaviour as well.

Secondly, through the depth of detail it may have been discerned that an overwhelmingly large part of the discussion has been devoted to discourse-oriented uses. It is this kind of modality which Janet is chiefly concerned with expressing, as we shall see from the frequency data presented in the next section of the results.

4.3.1 (b) Simon's interesting usages

Session One

Mother: Do you think we should make four sponge cakes or do
you think we should make five?

Simon: I think we should make four sponge cakes (1:18-19).

This is the first instance of SHOULD in Simon's transcripts and at least partially introduces a special usage much used by Simon. His mother asks, really as a matter of preference, how many cakes they should make. From the context there seems no reason to prefer the one number over the other: what is important to note here is exactly how weak the notion of necessity is here. All that is really happening is

Simon's conscientious mother getting him 'involved'. § About fifteen minutes later, while playing with his Lego he starts with what appears to be a series of formulaic usages:

Do you think I should push the road out this way? (1:46)

Where do you think the cross roads should be? (1:66)

These and literally scores of other questions are addressed to his mother, who is watching him playing on the floor. The first example seems to be the "standard" form, insofar as it is the most consistently used. There is no real compulsion for Simon to build things in a specific way; the cases where there are objective constraints, for example, like putting a 'No Parking' sign next to double yellow lines, are dealt with as 'Regulative' uses. However, it seems that Simon needs or wants somebody to minimally participate in what would otherwise be a solitary game. It seems also, that he needs reassurance that what he is doing is reasonable. He seems to be making an offer to do something, although this may be too strong a reading: it is not clear whether he would give to the other person any authority for making the final decision. Finally, it should not be forgotten that we are dealing with a modal of dynamic necessity: it must be allowed that the 'necessity' reading is present, however weak.

The categorisation of this use of SHOULD as 'consultative', with 'weak necessity' is more difficult to assign unequivocally in cases such as the following:

I should put this in the canal, shouldn't I? (1:62)

How many of the roadsigns should I put up? (1:116)

Should I put it [roadsign] in the middle of the crossroads? (1:118)

The consultative component is less marked because of the critical absence of d'you think. However, there is still the fact that all these are questions relating to Simon's own actions: there is still the interactive component operating. Also, nowhere are there explicit circumstantial sources of the necessity in the immediate linguistic or extra-linguistic environment, so the necessity component is relatively weak. For this reason I consider these utterances as variants of the formulaic ones cited immediately above, and therefore they are also coded the same. The difference between this stylised use and the more clear 'circumstantial' or 'neutral' use can be seen in one isolated

example following soon after those above:

Should that [see-saw] go there, because that's
near the shoot and the slide, isn't it? (1:124)

Here the conditions of appropriacy are made explicit.

The phrase d'you think turns up in other contexts (in all 69 times), for example in d'you think.... X could...., d'you think it would be better...., d'you think we should...., d'you think I might....,etc. An even more tentative example is Would you think....? which occurs four times. It seems that Simon is in general very keen to solicit the passive participant's (in this case chiefly his mother's) approval or monitoring of his actions. The overall tone of language of the first session is one of tentativeness, speculativeness, hypotheticalness and contingency. Simon is unassertive in himself, not given to rapid, decisive action and although not overtly unduly dependent on his mother, nevertheless keen to get her at least passively involved in his construction games. She doesn't offer specific, direct advice much of the time, and Simon doesn't feel bound to follow what she suggests. His mother said that he'd been like that since she could remember - talking to her incessantly, yet not being demanding in the usual child's way.

We have seen a weakening of the sense of necessity in one usage of SHOULD. A parallel in the domain of possibility is seen in one usage of COULD, only rather less frequently (with about a dozen examples in all):

Simon: Do you think this other one could be a joiner shop? (1:41-2)

Mother: I think it could.

There is no exact parallel to what I called the "standard" type for SHOULD: if there were, it would be D'you think I could make....? Anyway, Simon is not really asking seriously about the possibility of building a joiner shop, although of course there is this part to the meaning. He does not generally refer to the constraints which would make the posited actions possible. Once again he is drawing the passive observer into his game: there is an element of needing reassurance. There is also a parallel in finding less stylised usages with the same meaning:

What could be the rest, lying down? (1:95)

That's where I could put it [the sign] ? (1:109)

There's going to be a little roundabout, so what
could there be? (1:112-3)

I would not want to push the analogy too far in claiming the weakening of the sense of 'possibility'; after all, here Simon is able to articulate some sort of circumstantial constraints explicitly. However, the element of 'consultativeness' is quite clear and it is this element that would lead me to posit a parallel distinct subcategory. (There was however a degree of unreliability when I came to check my judgements in this category. The unreliability operated in the direction of wanting to assign more circumstantial could's as consultative.)

Simon gives an explicit paraphrase for the CAN of 'regulation' which shows he understands that it deals with what is permissible within the rules or regulations:

Simon: You can [park] if you're going to the china shop (1:105).

Mother: On a double yellow line you aren't meant to park at all, are you?

Simon: But you're allowed to park if you're just going to the building (1:106).

Let me hasten to add that even if Simon isn't aware of how idiosyncratic his regulation is, I am! He seems later to have straightened out his highway code when he says:

You are to park on the other side of the road where I've done the wee double yellow line (1:177)

and of course shown competence with IS T0.

Session Two

In this session Simon develops some variants of the formulaic 'weak necessity-suggestion' structure shown three months earlier.

I think we should put it that way, do you? (2:1)

Put some of the toys that way - I think we should, do you? (2:4-5)

This reversal to I rather than you may indicate increasing confidence on his part, about what he ought to do, but nevertheless on a large number of occasions he does consult the listener (usually myself) about what she thinks. This is not always so much about what she thinks he should be doing, but more often calling for a judgement about what he is probably going to do anyway. This request for a judgement can be seen in the following:

Which way do you think the oars will come out? (2:6-7)

Where do you think the lorry is going to go? (2:100-1)

D'you think it would turn that way? (2:106-7)

A judgement may be called for in a way that is less explicitly marked (following immediately from the last example given above):

What will it do at the next crossroads? (2:110)

Which way will it go? (2:113)

Notice that there is an interspersion of 'unreal' or 'tentative' forms (2:106-7) with the 'real' futurity forms. I think this would indicate that the 'unreality' here is related to the 'futurity' sense and it is therefore not a case of being faced with tentative epistemic forms, which we have taken to be restricted to present and past time reference⁴.

When Simon uses 'I think', this prefaces a range of subordinate clauses only some of which themselves contain a modal. The modal verb or adverb doesn't directly link up with the sense of 'I think'; rather this seems to operate as a general marker of non-factivity. Notice the range here:

I think it's to check the tires [hose near jetplane] (1:119).

I think they could only go here [fitting Scandinavian countries onto map] (1:41-2).

I think that's why they call it "Yellow Sea" (1:60).

I think it's right. I think it's yellow sand (1:61-2).

One wonders why it is that Simon feels the need to mark so many of his utterances explicitly as non-factive. He is, however, not reluctant to draw conclusions from these non-factive utterances, albeit with a little encouragement. The last three examples are embedded in an interesting sequence.

Simon: You can probably see a wee bit of the sand at the bottom of the Yellow Sea.

Observer: Yes, that might be so, hey?

Simon: I think that's why they call it 'Yellow Sea' -d'you think that's why they call it 'Yellow Sea'?

Observer: It might be, indeed.

Simon: I think it's right, I think it's yellow sand Yes. It must be yellow sand then (2:58-63).

Here is a classic example of Epistemic MUST. The steps to the

conclusion are made explicit. The appropriateness of a paraphrase "the only possible conclusion is that ..." is clearly illustrated. Notice that we have not moved from the realm of non-factive (I think...) to 'factive' (I know...) but rather to the realm of epistemic necessity. However compelling the conclusion, we are not yet in the world of 'fact', simple statements of fact unqualified with respect to the attitude of the speaker to what he is saying (Lyons, 1968).

It will be recalled that I claimed that the set sequence D'you think I/we should...? was not only consultative but also had the overtones of being an offer. In this sense it is very closely related to the sense of SHALL of 'offer'. The two forms have more recently been viewed in the literature as quite disparate in spite of the formal parallelisms with other primary modals. The close relationship is clearly shown here:

Simon: Shall we do tiny lines like that for the roads?

Observer: Pardon?

Simon: Should we do any roads on ... in the countries?

Observer: We could, yes.

Simon: I think that will be the best idea, don't you?

(2:131-4)

It is in this last utterance here that I identified one of the three instances of Epistemic WILL in Simon's data (and I found none in Janet's). There is a distinct problem of identifying this usage and the literature is not specially helpful. In the space of two pages Palmer (1979) makes conflicting claims about Epistemic WILL:

"Epistemic WILL refers to what is reasonable to expect. It can be roughly paraphrased 'A reasonable inference is that...'. ... Will expresses a confident statement... . The essential difference between them [WILL and MUST] is that, while will indicates a confident statement, must suggests a confident conclusion from the evidence available... will would suggest a conclusion rather than mere probability or 'thinking that'" (p. 47-8).

I see no way of extracting Palmer from the tangle he has got himself into: however, from the examples he cites, it would appear that the "confident statement" reading is the more accurate. However, it will be recalled from Chapter Three that I have chosen to restrict the use to where the reference is the present or past. I think then, that we do have here an instance of Epistemic WILL. (Haegeman (1980) does report

them as extremely rare even in the Survey of English Usage.) However, there is still a slight possibility that this might be a performance error and that Simon may have intended to say I think that would... since would is used in this way a vast number of times.

Palmer (1979, p. 56) says that we seldom question epistemic modality: here we have the only example of the suppletive form of epistemic possibility in all our data:

Observer: What is this ocean here?

Simon: What could it be - the Arctic? (2:154)

In this session only, Simon uses the expression 'I would say' on seven occasions. These were used, with one exception to refer to a map he was making, or looking at in an atlas, for example -

I would say the middle America's that bottom bit (2:31).

And then the Southern [Ocean] to there I would say
and then it changes into the Atlantic (2:136).

This expression could I think be accounted for as an expression of a propositional attitude but, tantalisingly, the expression contains a tentative epistemic modal would. However, the sense is more specific than Palmer would suggest for epistemic would, i.e. "It would be reasonable to conclude that...". It seems that Palmer would want to treat the expression as a form of unreal WILL with a vague implicit condition (p. 139-140): however, it does seem to have a specific function when Simon uses it here - he is making explicit that he is making an estimation. However, I cannot justify its inclusion as an epistemic expression in any stronger way.

Session Three

Simon here in his reluctance to wear the radio microphone uses an emphatic form:

Mother: I'll put it on [you] .

Simon: I don't want it (3:1).

Mother: You usually do.

These are exceptionally rare in all my data. Refusal forms themselves (i.e. negation forms of WILL, WANT TO, etc.) are themselves comparatively rare.

The use of dynamic CAN in conventional implication 'request for

action' is shown in an interesting variation here:

Simon: Perhaps you could do this wee bit a
different colour (3:10-11).

Observer: What colour shall I do it?

I don't think there could be such a thing as a could of command, as there would be a clash between the sense of imperative and tentativeness of could. And of course a command with 'perhaps' is nonsensical. But still, we have here an assertion, whereas CAN 'request for action' is defined in terms of an interrogative. However, it is the position of the adverbial sentence-initially that is preventing this from being an interrogative; we would alternatively, have to have, Could you perhaps do this...? In any event we are dealing with almost an extra-polite form.

Our previously much used 'weak-necessity cum offer' form is back, slightly altered in form yet again:

I wonder if we should make this the night-time or not?

[colouring in] (3:13-4)

I'm wondering what we should do? (3:50-1)

He reassures himself about the appropriateness of his actions in yet another quaint way (cf 1:33 quoted above):

I think it would be sensible, don't you? (3:15-6)

Session Four

This is the session with by far the fewest modal utterances. This can be explained in part by the fact that Simon has no other child to play with: in the last two sessions he has friends and is back to his more usual high level of output. However, this cannot be the sole explanation since this never hindered him in the beginning, so there must be an added factor. During this period Simon was disenamoured of school and I came to be associated with it, quite reasonably, since I was working there nearly every day. Perhaps he was not that keen to talk with me. In the following session he expressed antagonism towards me, to his cousin (forgetting that it would be recorded!).

In close temporal contiguity Simon shows that for him WILL and SHALL can operate equally as 'offers':

Will I bring my outer space book down? (4:4)

Right - which of the planets shall we look at? (4:5)

It does not appear to be a function of co-varying with the pronoun, since at the end of the session we have a Shall I....?

We have a very tentative unreal form in a question which Simon asked me:

Which one [planet] did you think was nearest [the sun] ? (4:6)

This is the only example directly related to Do you think? and would seem to parallel the Would you think? we observed in Session One, although here the 'unreality' is extended even to the main verb was.

All these red bits are roads, I think (4:20).

Simon's use of I think at the end of an utterance, the three times it occurs (overall) has no modal preceding it, and presumably operates to soften the categorical aspect of the assertion.

What is particularly striking about this session is the complete absence of Do you think + Modal, specifically weak SHOULD and COULD. Partly this could be due to the factor of increasing confidence on Simon's part, and otherwise a possible factor is that we are not doing anything active in this session. Therefore Simon has no need to be consulting any adults about what he 'could' or 'should' be doing: he does, however, use I wonder.... (or variant) five times, so this could be partly replacing a tentative function.

Session Five

In this session we do have the re-entry of the formulaic forms, which Simon uses to his cousin, who (perhaps significantly) is slightly older than he is. It does seem that the necessity sense remains very weak, and what he is doing is probably trying to get token sanctioning for what he is doing, perhaps merely a signal that she has noticed or is noticing. For example,

Susan, do you think I should finish the whole book
except that wee sign there? (5:29-30)

We have an opaque context where we cannot determine whether a 'volitional' or 'pure future' sense of WILL is intended (this has been noted by Haegeman (ibid), but appears not to have been noticed by Palmer cf p. 109 (ibid)):

What d'you think she'll say? (5:67)

We cannot tell whether Simon is referring to the future as predicted by the hearer or the intention of the referent, in this case myself, since they want to ask if they may hear themselves on the tape.

A little later Simon says something rather rude, and having already said it, observes:

That would be rude, wouldn't it? (5:81)

This is an odd usage of the unreal form - it would seem to be more appropriate to use a 'real' form like, It's rude to say that . It is not clear whether this is a performance error or a genuine overextension, since tentativeness and unreality seem to pervade Simon's expressions about the world, as we have noted before.

One other minor observation remains to be made about this session. We have an example of LET'S... which is not a suggestion for joint action:

Let's see what the temperature is (5:86).

It is clear from the extralinguistic context that cousin Susan is not included in this, and Simon is in effect saying I'm going to see... . It seems that he really only wants her to monitor what he's doing.

Session Six

Once again we have the virtual disappearance of the formulaic-consultative forms. Simon is most unlikely to ask his friend Douglas⁵, with whom he is in competition, what he should do. The question of correct knowledge is important in their relationship - and Simon is forced to confess he doesn't know no less than fifteen times. And this is partly because Douglas asks him 'unanswerable' questions trying to get Simon to work out what he's about to draw on his town plan, e.g. Which side'll win?; How far do you think it'll be from there? Not all Simon's factive I know... are acclamations of knowledge either, for example he makes the suggestion for action:

I know what we could do, we could make a weather shop!

(6:57-8)

We have left until this point the discussion about a problem of indeterminacy which in fact pervades the coding of every session. It is probably very nearly as acute as the problem of discriminating 'ability' versus 'circumstantial' uses of CAN, perhaps even more so. I am referring here to WILL with first person subject, where it is not always clear whether we're dealing with basic volition or an actual

agreement by the speaker, tantamount to an undertaking. In Standard English, Palmer would want to argue that SHALL is used to indicate futurity and WILL indicating deontic meaning. However, in Scottish English we do not have any such elegant solution since SHALL disappeared in the late 19th century everywhere except possibly with first person interrogative, and then even here, in most varieties. Janet has SHALL minimally in line with the English usage, but Simon has both WILL and SHALL in offers. Both children have a huge number of cases where they have I will.... Because we have lost to a great extent 'futurity' expressed by SHALL, we would still need to discriminate uses of WILL to express 'futurity', 'volition' and 'undertaking' with the first person singular.

Dealing first with the 'futurity' meaning it turns out that although this form is widely used by both children, it is only Janet who uses it with a first person subject (on two occasions). The form is well represented with second and third person subjects. We shall have something to say about this in the next section of the results. Anyhow, it seems clear from the children's data that they are more likely to announce what they are intending to or about to do than what they'll be doing as a matter of course (closer to a 'pure' future).

Our next problem then is to try to distinguish a simple volition from the conventional implication meaning of undertaking. There seems no evidence of the SHALL of undertaking either, in Scottish English, so we're really only dealing with two uses of WILL. What kind of cues do we have to identify the undertaking? It seems that it is partly a case of linguistic and partly extralinguistic cues. One of the criteria I set up was that if the speaker seemed to be involved in a discussion about possible actions, the presence of "you" in the child's utterance, e.g.

I don't know the name, but I'll show you it, Mummy (1:65).

I'll wait until you can get on your second one [before
turning to new drawing to colour in] (3:59)

probably indicates the child is agreeing to act for the hearer.

However, this is too narrow a reading, because it would sometimes be apparent that the child could be agreeing to act without making such an explicit marker:

Simon: We don't want so much sea do we? (3:33)

Observer: [...] What are we going to do then?

Simon: I'll colour over it (3:34).

However, I would hesitate before claiming that my judgements are absolutely reliable in making the distinction. Trying to define the 'volitional' use, I would see it either as the child saying what he'd like to do, or else as a sort of monitoring device - 'this is where I'm going', 'this is what I'm going to do'.

I'll do a scale [on the map] (6:85).

I'll put it there [Sudan on world map] (2:48).

While we identified only two first person singular 'futurity' WILL's, with the youngest children the use is slightly more common with first person plural (Simon has eight examples, Janet one). I think we can be more comfortable with asserting that these are indisputably pure 'futurity', for example:

She's going for a sleep. We'll not see her for quite a long time, will we? [Baby sister in pram] (2:18)

Mother: Let's see if we can find all the places, shall we?

Simon: We'll find them in the whole world! [looks for map showing whole world on 2 page spread] (2:69).

Towards the end of this last session we have two instances of what is arguably Epistemic WILL. It is with the progressive infinitive and although it has no adverbial specification of time, must of practical necessity refer to the immediate future⁶. Nevertheless Simon does not appear to be saying what he intends to do, but what he'll necessarily be doing:

Simon: Well mine's in the town so I'll be making a scale (6:87).

Douglas: Oh...

Simon: I'll be making a kind of scale, won't I? (6:88)

If it is not Epistemic WILL, then it is 'futurity' WILL (of 'consequence', explicit in the first case).

There appear to be clear examples of Epistemic would in this session. It is worth citing them for this reason, as it does seem clear that Simon has the form in his repertoire: the two boys are looking at the weather report in the newspaper.

Simon: We would definitely be in the fifties,
wouldn't we? [degrees fahrenheit] (6:5-6)

Douglas: We were 10 [°C] , 50 [°F].

Simon: That would be the very maximum for you, that was (6:7).

Two points need to be made here. First, if we take Palmer's (ibid, p. 48) paraphrase of would as "I should think that ..." in making this prediction about the past, Simon would in effect be saying - I should think we were definitely in the fifties. Our second point revolves round the significance of the code in the second utterance would be ... was which shows that it wasn't completely appropriate to be making a prediction about the past, when he knew what the actuality was. I also think he was saying that it couldn't really have been much hotter than that.

The 'estimation' sense of would is shown clearly in another instance, where Simon is watching Douglas drawing his map, and says, of the distance to the school -

It's about seventeen, wouldn't it be? (6:124)

These would be amongst the clearest instances produced by Simon.

It should be reasonably clear by the kind of forms we have focussed on in Simon's data, that unlike Janet, he is not preoccupied with using discourse-oriented forms. He is much more concerned with hypothesising and making judgements about possible situations. This should have emerged simply from the descriptions of his activities and then mirrored in the language forms themselves. We have seen this in the epistemic, dynamic and modal lexical verb uses. The two younger children, in their very different preoccupations capture two extremes and vividly remind us of the very different kinds of meaning encapsulated in the one complex system.

4.3.1 (c) Aileen's interesting usages

Session One

We have noted the difficulties we might have in identifying undertakings. With Aileen's data we have less difficulty because she characteristically spells out the attendant conditions for making them. They can take the form of negotiations,

I'll give you everything I've got if you just give me that (1:3-4).

or else (mock) threats -

I'll go and get Daddy's saw if you do that, and cut you into little bits! (1:28)

These are not true undertakings, but conditional undertakings, what she definitely would do if There are more instances of these in other sessions, but this usage seems to be more or less peculiar to Aileen. However Janet and Tim have a few instances each.

In this session and occasionally later Aileen uses the 'consultative' SHOULD -

Fiona, what d'you think I should make first? (1:35)

Aileen is not, however, quick to ask her sister for suggestions. The largest number of occurrences is in Session Six (4) and these are addressed to her mother, who is not inclined to dispense advice and merely responds It's up to you darling or Please yourself, darling. It's almost as though this is unusual behaviour on the part of Aileen who is usually very self-sufficient.

We also find a rare instance of 'would' as a request for action -

Fiona, stop your French would'ya? (1:45)

This is so strongly worded that it virtually functions as an imperative: but of course it remains in interrogative form. We have the only other instance of this with Timothy (Session Five) when he says to his brothers Would you shut up!⁷ Both utterances are addressed to juniors, so there is some position of authority.

In this session Aileen shows no use of SHALL, using WILL even in offers:

Will I show you the whales I can make? (1:43)

Mum, will I show you how I made that butterfly? (1:46)

It would seem then that Aileen's system is characteristically Scottish English, with no influence of Southern Standard English in this regard. However, we see in the following sessions that she is able to use SHALL appropriately, not only with her friends, but also to her family. She seems to be quite happy to shift her system.

Session Two

When there is a group of children playing together, Aileen is quite keen to take charge: we see this in her BE GOING TO obligative uses, which are not usually so direct as to use the second person plural: here the children are setting up a game of boats at sea, with cushions and rugs -

Not in the bathroom! Look, we're going to do it in the hall (2:4).

Nobody is going to have anything! (2:19)

However the second example shows her setting herself very much apart from the group, not merely as the determiner of their joint action.

We have a discourse-oriented use of BE GOING TO which is not observed with the younger subjects, who show evidence of the obligative type only. The children are playing in the passage when Aileen says -

Well, who's going to put the lights off? (2:33)

This would be a suggestion or request for action, and its function over and above simply questioning intentions may be explicitly signalled by the well. Very shortly afterwards we have the primary meaning predominating again, when the children are lying on the rug, pretending to go to sleep:

Who's going to be first to wake up? (2:39)

This may not be an explicit suggestion for action, but Aileen is still in charge.

We have the rare example of a discourse-oriented necessity being used with reference to the speaker reflexively:

Is it the sitting-room chair? I'd better not [use it for the game] (2:14)

It seems rare that children tell themselves what they shouldn't be doing. It could, I suppose be conceived of as a dynamic usage, with circumstantial necessity being specified. The deontic source of had better would seem to be internal or external, so either reading would be appropriate (cf the deontic statement discussed at Janet, Session One).

We find the only instance of WILLING in our data in this session: it occurs when Aileen is organising where people are sitting,

You can sit there if you want: Shona is willing to
change places (2:21-2).

This is probably in the interests of explicitness, since to say Shona will change places would be ambiguous between the volitional reading (paralleling willing) and perhaps both a future and an obligative reading, in this context (cf Aileen's definitions in Session Three).

This kind of indeterminacy can be seen to a lesser extent with WILL and first person plural subject -

We'll take the things and we'll close the door and
bring it back again (2:23-4).

Right we'll put those back there (2:32).

In point of fact Aileen is in charge of what is happening; however, she includes herself in what would appear to be an obligative use. This softens the directive force, and with the virtual co-occurrence of the words and the actions, the monitoring function is salient as well.

In contrast to the simple asking of permission, we have an instance of reported permission (which stands in contrast with the performative use), when all Aileen's friends have departed except one:

Mommy, Lesley can⁸ still play so we don't need to tidy
(2:40-41).

Session Three

We have two idiomatic uses near the beginning of this session. The first occurs when Aileen asks her sister -

Aileen: Can I ask you why you've got your doctor's
stuff out? (3:14)

Fiona: We're not feeling well.

The Can I ask you is rhetorical since in the act of asking permission she asks the question as well. This serves to make the question more remote, more distant, but possibly carrying overtones of disapproval as well. The second occurs at afternoon tea-time when Fiona wants a second biscuit and promises to 'eat-up' that evening -

That'll be the day when she eats up at mealtimes! (3:17)

This would have to be coded as 'futurity' WILL, but is unreal in its meaning.

In this episode we have the only instance of the WILL of 'habit': the conversation continues about Fiona's predilection for pudding -

Grandma always has some trifle or cheesecake
so that's why Fiona will always eat up her
dinner there (3:20).

This fits the criteria of not applying to a unique future event, with an adverbial specifier in the context. Aileen was also the only child to use the related form WILL of 'insistence' (see Session Six).

In the following sequence we have an indeterminacy between circumstantial and (reported) prohibition CAN, resolved by Mother's reply:

Fiona: And I've been invited to a party, but we can't go.
 Observer: Why not?
 Aileen: Why can't she go, Mum? (3:30)
 Mother: ... You've promised to go over to Fife.

During this session, which seemed a particularly quiet one, there was a spell where Aileen was colouring-in and not saying anything at all. It seemed that Aileen was reluctant to be drawn into conversation so I launched into some informal piloting of tasks I was preparing. I had given Aileen two items differing only where one had was willing to the other had would. Aileen said they meant the same, but when I questioned her more closely the following spontaneous definitions were given:

Observer: What does "willing" mean?
 Aileen: We'd like to come if we could (3:36-7).
 Observer: And if I said "he would come"?
 Aileen: He knows he can definitely come (3:38-9).
 Observer: So there is a difference, if you think about it?
 Aileen: Yes!

I had hoped to elicit some modal expressions, and was rewarded with a couple of precise definitions⁹.

Session Four

All the case-study children are capable of, and do use the formal form for making requests. The one occasion here that Aileen uses it, it need not be formal, since she's addressing Fiona.

Aileen: May I have some please? [water] (4:14)

Fiona: You can have some after.

She is probably just trying to be polite (and wheedling), which she is not always predisposed towards being.

In the following sequence we find Aileen using can't to mean won't (at 4:18). This would be a familiar situation when one is unwilling to admit reluctance, preferring to shield oneself in contingencies.

Aileen is on the swing in the garden -

Aileen: You can sit on my knee if you want (4:17).

Fiona: You can stand up, can you?

Aileen: No, I can't ... (4:18).

If you sit on my knee, I'll let you have
a turn (4:19).

Within a couple of minutes Aileen relents and offers to stand up on the seat while Fiona sits on it.

When the two girls are playing at being in a raft, Aileen once again directs activities. She uses a conveyed implication request for action in what one might describe as its most explicit form:

Look Fiona, can I tell you what to keep doing: you're
to keep pushing and pulling, okay? (4:37-8)

In asking whether she can tell her, she does tell her (cf 3:14 above for the parallel use of ask).

We have too an example of an indirect kind of request, when the girls are playing in the sandpit -

I don't suppose you're going to give me a sieve
for a minute? (4:55-6)

The don't suggests that she isn't expecting much (but in fact the request is instantly granted by Fiona) and the effect is slightly ingratiating (cf example 4:14 above).

We had differentiated in our initial categorisation between CAN request and deontic request for action where in the second the effect

is both to ask permission and to get the addressee to do something for the speaker. Palmer did not make any such distinction for MAY, saying its function here is to ask permission. However, there is no reason why we should not find such a distinction here and in fact, even in the minute number of instances of MAY that we have in our data, two utterances would appear to be requests for action. One in this session with Aileen, the other with Janet.

Aileen: May I have some please? [water in sandpit] (4:14)

Janet: Please may I have some more to drink?

[Lemonade at lunch-time] (6:15)

One wonders whether such requests for action would be inherently less likely to occur with MAY since it is more formal, and the child less likely to try and achieve two ends in one move. However, we do not have sufficient data to detect such a subtlety. In any event there did not seem sufficient justification for a separate category.

Session Five

Near the beginning of this session Aileen shows that she has the mastery of the Southern English usage of SHALL -

This is what I hate doing but I shall have to ... (5:6).

No, we shall not forget the game (5:15).

We have an example of the 'futurity' SHALL with a deontic statement and also, I think, the SHALL of 'undertaking'.

Aileen uses what could possibly be described as 'existential' CAN several times. Palmer (ibid) sees this as parallel to dynamic modality (viz 'possible for') but distinct since it is dealing with quantification¹⁰. The utterances are -

Marbles can be different sizes (5:55).

Julia I can get a bit bad tempered at times! (5:86)

Little sisters can be helpful sometimes! (5:146)

[when Fiona has fetched a rubber band]

I would extend the use, in the latter two examples covering temporal qualification (at times, sometimes).

When she is clearly in command of a situation Aileen (like Janet) uses a marker okay which is rhetorical and really only a monitoring device -

Now I'm goin'ta deal them all out, okay? [marbles] (5:90)

You can try it going down the steps, okay? [Mousetrap] (5:135)

These okay's are not separately coded.

Fiona protests as she sees Aileen dismantling the game 'Helterskelter'. Aileen explains -

D'you want it made better? (5:116)

Yes.

Right, let me make it better! (5:117)

[triumphantly doing it]

This is the only occasion on which we find let used in the sense of 'allow'; usually it is a 'request for (joint) action' let's

We find Aileen making very clear a distinction as to what think does not mean when she is trying to work out the gears for 'Mousetrap' -

I think ... I'm not saying I know, I'm just saying

I think [that is the gear] (5:150-3).

There is rather an idiosyncratic 'obligative' when Aileen is trying to concentrate she says to her friend Julia and Fiona -

If anyone can be quiet, I want it to be you now (5:169-70).

This is not, of course, a real conditional; the expression is certainly very quaint.

The game Mousetrap is time consuming and difficult to construct. When Aileen is particularly struggling with it, she uses a unique instance of unreal BE ABLE TO, following wish:

That boot won't kick! I wish that Uncle Ian

was here because he'd be able to do it (5:187-9).

We also have an example of 'futurity' WILL with first person singular subject, when Aileen has just about finished building the Mousetrap -

Right, I think I'll get it now (5:214).

This is not so impressive in view of the fact that there was an equivalent SHALL earlier in the session. It is just possible that this could be an epistemic use, because of the explicit marking of judgement and also the temporal marker now.

This is the session in which Aileen uses far and away the most modal expressions. It seems that she was in her ideal communicative

situation, which like Janet, involves her being in command of the situation. However, this does not involve a simple increase in discourse-oriented forms, but because of the problem-solving nature of the situation, there are a good number of epistemic and dynamic forms.

Session Six

When Aileen tells about an outing she and her family had she uses what is our second and last instance of past unreal WILL -

No-one would have been able to get into the car if anybody else had been here because we only just managed! (6:28-9)

It is interesting that she makes a mistake with her quantifiers; it should have been No-one else ... if they had been ..., but the implication of non-actuality is clear (cf also Janet, Session Six).

Aileen reveals her wide range of structures for asserting her authority over her younger sister yet again, when she says -

Anyway Fiona, who said you could use my blunt scissors? (6:34)

Fiona is left in no doubt that she needs permission before using her sister's possessions. This is expressed through conveyed implication, while appearing to ask about the source of her permission. The function is of gentle admonition, because she does not remove the scissors from Fiona but simply makes a passing but slightly scathing comment.

One object of interest in this session is Aileen's Rubik cube and snake. Her mother confesses to not being able to master these at all. Here we have our only instance of habitual WILL in all our data, when Aileen says to her mother:

Yes, and you will fool about with my Rubik things! (6:57)

But Aileen is not really angry.

The description of interesting usages is shorter for Aileen than for the two younger children: this is not because her system is any less interesting, but possibly a reflection of the fact that I did not need to invoke any special subcategories to characterise her forms. Her total range of uses is the widest of the four children (as we shall

see at 4:3.2) and this is reflected in the wide range of different uses which merited some mention in this section. Although there is no objective index in these matters, it would seem to me that Aileen shows greater maturity in her range of discourse-oriented forms¹¹ than Janet does, principally through idiomatic formulations which render the forms more objective and remote. However, her prolific production of epistemic forms especially in Session Five should not be overlooked, and the potential of such a situation for eliciting such forms should perhaps have been exploited with the other children.

4.3.1 (d) Timothy's interesting usages

Session One

We had observed that I think found clause finally, modifies a sentence which itself is not modally qualified. The function would be then to make the force of the assertion less categorical. With Tim, this generalisation still holds as for example in:

They're mostly all out, I think (1:2).

He does show an interesting parallel usage with other epistemic modal expressions -

You know, pussy doesn't like being in the car, probably (1:5).

It probably can go on that train, maybe (1:38-40).

In this second utterance he has weakened the modalised sense already present from probability to possibility. (There were four probably's out of a relatively high total of 10 epistemic uses this session.) I would surmise that he enjoyed the studied, considered approach that this form suggests (modelling perhaps his father, an advocate). In any event he is a moderately serious child.

We have too a couple of instances of habitual 'would', slightly less rare than habitual WILL, and used almost exclusively by Tim.

The family are discussing the behaviour of the family cat in the car -

Father: Tigger used to [...] climb up on me if she thought I was going too fast!

Tim: (laughs) and then you would slow a bit down [...]
what part would she sit on, your shoulder? (1:6-7)

When Tim is showing me a model gun he uses what appears to be a valid instance of dynamic 'might', which can be paraphrased as circumstantial 'could' -

I think you might put bullets there and come down and fire it there maybe (1:24-6).

That we have a dynamic reading here is suggested by the epistemic qualification, also of possibility. There would be an unnecessary duplication of epistemic modality without the alternative reading for might (although of item 1:38-40 above).

In our analysis of Aileen's data, we what appeared to be two instances of BE GOING TO of 'undertaking'. However, this seemed to be isolated instances, and we can find no other examples in our data. The closest that we can come to it in Tim's utterances is -

Father: Are you gonna use the tracks?

Tim: We're not gonna use them (1:35).

which I have taken to be a statement of absence of intention, rather than an undertaking not to do so.

While Tim and his brother Robin are setting up their model railway, Tim wants to draw Robin in to agreeing to his proposals. He does this by tactful tentative tags -

Robin, if we put this in the other way round we can make that down onto the bridge, couldn't we Rob?

Let's make it go down under the bridge, shall we? (1:42-3)¹²

A little while later, Tim uses a conditional which is a mixture between an unreal and a real form:

This is in the way: if we took it out, it will go alright (1:68).

It should be either took ... would (unreal) or take ... will (real).

Session Two

In our discussion of Simon's data, we discussed at length the status of a particular usage of SHOULD which designated 'weak' necessity. The particular variant I have in mind we touched on in Simon's second session I think we should ... do you? I saw this as partly an attempt to involve the listener (note the tag) in his

activity and partly an attempt to get a judgement on the situational contingencies. With Tim, we get a similar form - sans the tag which I think has a slightly different function. They occur in playing 'battle spaceships' when he says to his friend Douglas -

I think we should put our wheels on (2:67).

Our radios weren't too bad last time but I think we should have different ones, not 3 for each: I think we should have just 2 beeps... (2:12-15).

I think we should have the other kind not this kind (2:18-19).

The sense of necessity is attenuated here, and in any event the constraints are hypothetical or fantasized. Tim is not so much asking for Douglas' judgement on the necessity as making a suggestion for action. It is in this latter sense that we can dimly recognise the association of SHALL and SHOULD. Towards the end of the session we find a related usage, when Tim says -

I think we must keep away from the spaceships of Afghan (2:56-7).

The sense of must is weakened by its collocation with I think in this context. It is more a suggestion for joint action, with no specific reasons for the necessity being given.

In our discussion of Janet's first session (see item 1:40) we made an observation about a usage which did not really justify a separate category. We could call it 'idiosyncratic circumstantial' which does not involve a rule or regulation per se, but functions to justify what the child was doing. When Tim is playing spaceships, in his fantasy play he constructed some 'necessities':

But first we've got to tidy up our spaceship (2:9).

We've got to stay here (2:14).

I have to go the front way round (2:19).

These are not constitutive rules, nor is there a discernable deontic source, hence I would want to keep these usages simply as 'circumstantial dynamic'. However, when Timothy reports an obligation in the real situation which has been imposed on him, this would be 'commentative'

And we've got to do it in our homework book (2:27).

Tim is telling his father about the homework that they have been set. I have more to say about this 'commentative' use in the following session.

Session Three

In Chapter Three we saw that there is a continuum from laying obligations and giving commands through rules and regulations to reporting rules and agreeing with them and finally reporting rules. We had instances of regulative uses and even idiosyncratic regulative uses with Janet and Simon, and I also discussed a 'commentative' use for Janet. This occurs when she is monitoring a situation, reporting deontics which her paper doll for instance had to obey. What Janet and Simon don't do is to report obligations which are pertinent to themselves: Aileen and Tim do. I have called these 'commentatives' too, since they are not 'pure' deontics which are performatives, or where the speaker takes responsibility: here the deontic source is located elsewhere. For example Tim interprets a request I made as

Daddy, I've got to find something to do (3:8).

This differs from circumstantial necessity insofar as there is a specific and explicit deontic source rather than more-or-less general situational constraints. Assignment to different categories can only be made on the basis of reference to the fuller linguistic and extra-linguistic context.

We saw that Simon (Session Three) used an unusual use of dynamic CAN conventional implication 'request for action' in Perhaps you could do this wee bit a different colour. This was very polite and not the usual interrogative form. Tim provides, if anything an even more indirect request for action in the following sequence

Tim: Do you know how to play Monopoly? (3:15)

Observer: Yes.

Tim: Then you could probably show me how to play it (3:16-17).

I did not pick up the suggestion, perhaps because the remark was remote in form and potentially amenable to an overall epistemic reading if we take the probably as overriding.

When I offer Tim the chance of buying a property in Monopoly he uses one of the two instances of unreal WANT TO in all our data -

Two hundred and sixty dollars: no, because I'd probably want to buy some more railways (3:58-9).

Notice too the ubiquitous probably; both forms are tentative.

There is an example of BE ABLE TO present in form but referring to future time:

Let's hope I'm able to buy the top one
[railroad] ! (3:69)

Although there is no adverbial specification of time, presumably the meaning of the main verb HOPE is sufficient to indicate futurity. But one could just as well say Let's hope I'll be able to ...

A little later in the game of Monopoly we are discussing starting to build houses on our property. While I'm reading the rules about this Tim says -

Tim: I thought the big ones were hotels and the
smaller ones were the houses (3:81).

Observer: Oh, you're probably right

This seems to be the first clear instance of thought used as a tentative form. Otherwise we had only reports of thinking in the past. Tim would be giving due deference to my supposed superior competence with the game whereas, as can be discerned, I wasn't sure.

If we were to take performativeness as central to the notion of discourse-oriented modality, then we would not have to concern ourselves with future and past forms. However, since I have broadened the concept, the question is open as to what forms we would have to consider. In fact it seems as though there is at least one future form we have to account for, and that is in 'regulative' HAVE TO, for example in

And she'll have to pay two hundred [dollars rent] to me
because I've got the whole set [of railroads] !
[to Mother] (3:91)

The reason for this is clear - HAVE TO is the only semi-modal amongst the forms used by the children to express regulations, therefore it is the only one which could be explicitly marked for tense. Regulations after all encompass the future, and the other forms may refer to it but would not of course be marked for it. As it turns out we do have a parallel 'obligational' usage of will have to, to which these remarks are also apposite: one can impose an obligation to do something in the future (the imposition being in the present).

Session Four

My relationship with Tim and Eileen was slightly less informal than with Simon and Janet. They had seen me at school first and were inclined to want to call me 'Miss Macdonald'. They did not draw me into fantasy play, although as we saw in Session Two Tim could get quite involved in it himself. He was always extremely polite to me and would not have dreamed of bossing me. Hence we have for example, no CAN of 'command' (he does not use it in relation to others either). So we have what appear to be offers, in

You can be the banker (4:3).

You can shuffle the cards (4:4).

They have something of the nature of well-considered suggestions for action on my part, especially since mental arithmetic is not his strongest point, and I am more adept at card-shuffling. However, it is because of the general tenor of our relationship that I do not interpret these as commands.

A little while later we have a somewhat indeterminate utterance, as we are finishing our initial purchases (under the rules for a 'short' game):

Observer: That's 250 I've got to pay out.

Tim: Right, now, can we start? (4:16)

Observer: Yes, you start Tim.

I think there would be three readings at least here, Are we ready to start, I want us to start or please may we start. I would opt for the first, a circumstantial dynamic reading but no serious misunderstanding is entailed by ignoring the conveyed implication meaning. To take this latter meaning presupposes an affirmative to the first meaning, viz we aren't allowed to start until its possible (the game set out properly) for us to start.

An interesting example of the nuances of meaning from 'undertaking' to 'intention' is shown where we have related forms in otherwise identical linguistic contexts.

I'll buy that, I'll definitely buy that!

[...]I'm definitely going to buy that! (4:29-31)

I have coded the first two utterances as 'undertaking' and the third as 'volition'. Having staked his claim, I see Tim as exuberantly telling us about his intentions. I think it would have been a bit

insistent to keep on using the WILL form, with its sense of 'agree'. So it is not strictly true to say that WILL and BE GOING TO occur in the same linguistic context. The sequence in the discourse has determining constraints. I would tentatively suggest that definitely qualifies the act of buying in the second utterance, and qualifies the intentionality in the third.

Tim appears to make a performance error: when he should be describing the absence of regulation by don't have to ..., he says instead:

But you can't pay rent if you've already landed
on it and auctioned it [the property site] (4:49).

In this session too, we have an instance of SEEMS TO BE, a modal expression used only by Tim and Aileen -

It doesn't seem to be screeching any more
[the radio microphone] (4:2).

The significance of this greater variety of expressions will be taken up in the general discussion.

Session Five

During this session we have a game of Junior Scrabble and in explaining the rules Tim produces a quaint blend of two expressions -

It doesn't matter which one we start with ... we
can do which either we like (5:15-16).

It should have been do either or do whichever we like.

We have a couple of instances of a construction which occurs numerous times in the previous two sessions -

I think I'll swap (5:47-8).
I think I'll just ... I'll throw out the ... one of
the 'i's, a 'u' (5:53-6).

This construction occurs almost without exception in the context of a boardgame, when Tim is deliberating on a move. Aileen really only uses this when she is deliberating on building the game of Mousetrap, which was difficult and required plenty of concentration. We could say of Tim's use either that it shows deep concentration or else that was used to convey the impression (at any point) that he is serious

in his attitude. The one effect this construction has is to ensure that we don't give the WILL the undertaking reading: it remains unambiguously intentional.

In this session Tim is generally unexceptional in his use of modal expressions. Probably the only other usages worth mentioning arise out of the situation in which Tim is knowledgeable about the rules of the game (unlike Monopoly) and is therefore in a position to make a number of regulative statements, for example,

You try and finish a word if you've got the
right letters, you can finish it (5:7),

If you're making 'tie' you have to make 't'-'i'-'e' (5:19).

Session Six

In this last session we have what is a very rare form across all four children's data, and that is a 'pure 'futurity' WILL with first person singular subject. These occur when we get to a difficult stage in the game of Tri-ominoes and one forfeits scores if one cannot put something down -

I'll be losing all my marks soon I'll have
nothing left at the end of this round (6:33-34).

These seem clearly to be instances of 'what is going to happen '. The content of the utterances is crucial to the categorisation. One would not usually intend to lose marks and have none left (although one could envisage such a situation); also the 'future as a matter of course' interpretation is also suggested by the continuous aspect be -ing.

In making reference to the same rule, Tim uses a future perfect construction -

I'm losing lots of points with these "minus-fives".

Soon I will have lost 50 of them (6:77).

I think this is unique in my data.

At the end of the game of Tri-ominoes Tim is keen to play another round -

We're going to play another bit (6:87).

Well, we'll play another round; I'll have a look
at the tape [to see how much time is left] (6:88-9).

But I opt out; a little later he says

We're playing another round, don't forget (6:90).

I had suggested earlier that Tim did not impose obligations on adults: this is the only occasion on which he does so. In the first utterance we have another possible example of obligative BE GOING TO. He very badly wants to play another round and to get round the problem of bossing me, I feel there is almost a sense of inevitability conveyed - this is what is going to happen. The clue to this is in the last utterance I report in this sequence, which itself contains no modal expression but does convey the sense of inevitability.

It will be remembered that the definition of 'circumstantial' CAN is "It is possible for ...". We have several examples here of dynamic POSSIBLE itself, in:

If it is impossible to play any of the counters,
you're allowed to swap insted of play (5:17-18).

If it was possible to close that up and you did
close it?(6:60).

Would it be possible to close that up? (6:61-2)

Indeed these are the only examples we have of any use of POSSIBLE across all the case-study children. The corresponding epistemic form would be possible that.

There is an interesting form which is a request for action, yet does not have the conventional form

That'll be 6 for me, please [score] (6:57).

It is the word please which ensures the conventional meaning (please will you put 6 down for me); it is a form familiar to those who play board games.

We have one example of a modal nominal, which occurs when Tim is unable to use any Tri-ominoes out of his current hand. He says:

There's no doubt about me, I'll have to take
another one (6:67).

The modality is epistemic. Aileen used the corresponding lexical verb in:

I doubt you'll get wallpaper that colour (Aileen 3:46).

We will see in the following section, that although the actual number of expressions Tim uses is relatively small, he nevertheless

produces a wide range of usages. The distribution of forms through the different kinds of modality is more similar to Aileen, though in some ways his pattern is closer to that of Simon. All these matters will be taken up in greater detail in the second section of our results.

4.3.2 Statistical distribution of forms

4.3.2 (i) General remarks

We have looked at some details of particular usages for each child. We have made points which are sometimes purely linguistic, sometimes explained psychologically in terms of the child's behaviour and inclinations.

Now we have to turn to a general discussion where we look at the data from a number of different angles. We want to establish a profile of each child's characteristic usage, the differences between the children in this usage, and whether there is a developmental effect with the different kinds of modality. We would also like to establish a number of linguistic points, for example the relative use of SHALL versus WILL and MUST versus HAVE TO. We present the cumulative frequency charts in the body of this chapter.

It must be said at once that it is not clear whether there is any within-subject developmental effect to speak of. The total frequency of modal expressions over time would not seem to be a good indicator because the child's output was so dependent on his interlocutors. With Janet, Simon and Aileen I managed to get what I would consider optimum output on one occasion each when they were each with a very good friend: I did not manage to 'hit the jackpot' with Timothy, who furthermore in his penchant for boardgames did not speak as much as the other children. (They required concentration!) It may seem that we do not have as good a picture of Tim's competence as with the others, because of the lower frequency but from Table 4.1 it can be seen that this is not the case. Tim's range of uses was the lowest for futurity and dynamic modalities, but not substantially so.

	Total number of modal utterances	Total range of usages					Total	Number/ Range
		Epistemic	Discourse	Dynamic	Futurity	Lexical		
Janet	712	7	44	28	13	5	97	7.3
Simon	761	13	30	27	17	11	98	7.8
Aileen	624	12	47	30	15	13	117	5.3
Timothy	466	12	32	27	12	16	89	5.2

Table 4.1 Relationship between frequency and range of forms

A more interesting perspective is gained by looking at the range of uses relative to the total number. It will be seen that the two older children used proportionately fewer instances of each form. That is, their range was wider over a given number of modal utterances. By 'range' I refer to the total number of different uses they showed for all the forms (cf Table 4.4, 6, 8, 12 and 16).

One other way we might look for a developmental effect is by noting the new usages which are introduced in each session. However, we do have the projection problem mentioned in the introduction to this study. How it presents itself in this context is that the child may use a relatively simple form, which the literature would suggest he had already acquired, in a later rather than earlier session. Despite this particularly acute problem, we have drawn up Table 4.2 noting the new usages, where Session One usages give the base number. There are two observations to note: first that the children show to a varying degree, the total range of usages ultimately produced. Secondly an effect which cannot be genuinely developmental since it operates within all the subjects - a tailing-off of the new introductions when we compare sessions 2 and 3 with 5 and 6; 139 down to 81 new uses. However, any interest this may arouse is immediately cancelled by the observation that for each child in session 2-6, the highest number of new forms coincides with the occasion of the highest total number of modal utterances.

	Session						Total number of forms
	Base 1 Number	New 2 forms	3	4	5	6	
Janet	27	22	23	10	9	6	97
Simon	45	20	14	6	12	1	98
Aileen	33	16	17	12	34	5	117
Timothy	37	14	12	6	8	12	89

Table 4.2: Introduction of new forms per session

We have no comprehensive theory which would predict specific details of modal acquisition in middle childhood. Perkins' (ibid) remarks about the change of subject (I to we) reflecting a decrease in egocentrism does not bear directly on the forms themselves. His account of the later expression of objectified modality with expressions like IT'S POSSIBLE THAT being of a higher level of abstraction than the notion of an event being relative to a circumstance as expressed by CAN, seems compelling. However, he would predict this development to be much later than the age of our case-study children. It must be said, in a preliminary way, that all our children seem to be precocious with respect to the results which Perkins both reports from the literature and presents himself. (We will make reference to these in each section below.)

We followed each child for approximately fifteen to eighteen months and perhaps this period was not sufficient to show changes. The rate of language change may well have slowed down considerably by the age of 4½ years. The fact that the children are above average would exacerbate this problem: we would, in effect, be looking at performance characteristic of slightly older 'average' children.

It might be thought that we could make tentative inferences about development if we compared the two younger children with the two older ones. However, there are several reasons why I would consider this not a helpful avenue either. First, and most importantly, as we have seen, Simon spends a good deal of his time making hypotheses and inferences in a way which I would want to claim is objectively fairly mature, and in no way less mature than Aileen and Timothy. Quite apart from objective tests I would have described him as gifted so any

developmental effect due to his being even younger than Janet for the school intake is probably lost. Also, I would add to this that Janet used her language in such a characteristically different way from Simon, that we would be as well to be looking for insights into individual differences as for 'normative' developmental data.

Although we would not be looking for sex differences on so small a sample we will find that Aileen and Janet are similar in some parts of their profile of usage. However, it may just as well be an effect of similar personalities which in this case covaries with sex. Hence we will not do much besides point out the similarities.

Where possible we will be comparing our results to those in the literature. However, it is not always possible to make direct comparisons because the coding systems all differ in detail and specifically the observations of Perkins (ibid) which are the most pertinent to our work are described by core-meaning forms. This means that all uses of WILL for example are described together. While we would allow that it is useful to try to capture the core meaning encompassing the various uses of each lexeme, to then ignore the different uses and the situations of their occurrence is to miss rich and potentially crucial detail. Another careful and interesting study conducted with younger children by Wells (1979) does show the range of modal meanings, but this covers only the classic auxiliary modals. Our study then, might be seen as the most comprehensive.

By way of introduction into the complexities of the frequency data, we present in Table 4.3, the distribution of forms (not meanings) for our study, presenting for comparison the relative proportion for forms found by Perkins and Wells¹³. We have already pointed out that Wells was interested in modal auxiliaries, 18 forms in all (with no instances of DARE and NEED). Notice then that the percentages would not be strictly comparable¹⁴. Also, his subjects were from 18 to 42 months in age. Perkins reports 25 forms and the mystery is why there is such a large discrepancy between this and my total of 61 where ostensibly we are open to considering the same possible range of forms (both operating with a broadened concept of modality). The lower total frequency (2563 against 1826) will not, I think, serve to explain the narrower range, especially since his subjects were rather

Table 4.3: Distribution of forms: Present study, Perkins (1980, p. 237) & Wells (1979, p.260).

FORM	Total number	% of overall total	Perkins (6-12 yrs)	Wells (18-42 mths)	FORM	Total number	% of overall total	Perkins	Wells
CAN	514	20.05	25.9	37.26	I HOPE	5	0.2		
WILL	506	19.74	23	25.9	MEANT TO BE	5	"		
BE GOING TO	225	8.78	10.24	15.76	CERTAINLY	5	"		
I THINK	139	5.42	4.05		MANAGE	5	"		
WOULD	122	4.76	4.38	0.77	I SUPPOSE	4	0.16	0.22	
COULD	114	4.44	5.2	2.03	DARE	4	"	0.11	0.00
SHOULD	111	4.33	2.57	0.8	SUSPECT	3	0.12		
I WANT	90	3.51			USED TO	3	"		
YOU THINK	81	3.16			PERHAPS	3	"	0.11	
HAVE TO	73	2.85	13.96	7.14	DOUBT	3	"		
HAVE GOT TO	68	2.65		1.69	WHY DON'T	3	"		
SHALL	64	2.50	2.96	3.76	EXPECT	2	0.07		
I KNOW	63	2.46			LOOKS AS IF	2	"		
NEED (TO)	54	2.1	0.27	0.00	WHAT ABOUT	2	"		
MIGHT	32	1.25	1.37	0.98	LET'S HOPE	2	"		
PROBABLY	25	0.98	0.44		WOULD RATHER	2	"		
WOULD LIKE	22	0.86		0.61					
LET'S	21	0.82			YOU SAY (judge)	1	0.03		
BE ABLE TO	18	0.7	0.33	0.09	BE ABOUT TO	1	"		
MAY	18	"	0.27	0.77	WILL GET TO	1	"		
BE SUPPOSED TO	16	0.62	1.7		SURELY	1	"		
MUST	15	0.59	1.15	1.6	PRESUMABLY	1	"		
MAYBE	14	0.55	0.16		BE FORCED TO	1	"		
BE ALLOWED TO	13	0.51	0.27		I BET	1	"		
I WONDER	11	0.43			LET (allow)	1	"		
HAD BETTER	10	0.39	0.77	0.7	I SEE	1	"		
DEFINITELY	9	0.35			I BELIEVE	1	"		
SEEMS	9	"			I RECKON	0	0.0	0.16	
I AM SURE	9	"			OUGHT TO	0	0.0	0.11	0.06
KNOW HOW TO	8	0.31			I HAVE A FEELING THAT	0	0.0	0.06	
IS TO	7	0.27							
I WOULD SAY	7	"							
BE BETTER	6	0.23			OVERALL TOTAL	2563	-	1826	3247
I WISH	6	"			Total of forms	61		25	18

older than ours, i.e. 6-12 years. There are two other factors which might have some bearing here. First, the total time through which Perkins collected his data is considerably less than mine (5½ vs 36 hours) and tied up with this is the range of activities which the children involved themselves in. Perkins' subjects were instructed to build a Lego house, where my children were completely free to chose their own activities. The dictates of cross-sectional, normative study are stricter control, and the Perkins' subjects were constrained by the task at hand. It is possible that activities will partially determine the range of meanings expressed, for example, regulational for games, obligational in role-play, etc. (where the other determinants would be presumed to be idiosyncratic).

However, note that we have referred to the range of meanings, of uses, and not to the forms per se. With development we would presume that there would be an increasing complexity in the modal system in the following ways: first that the forms may increase their range of uses (e.g. classically CAN, spreading from dynamic ability meaning, through perhaps requests and tentative requests spreading to perhaps existential and maybe even epistemic uses). Secondly, that there may be more forms to express the same meanings (for example expanding from epistemic MIGHT to use POSSIBLY, IT IS POSSIBLE THAT, although of course these are not pure synonyms). Thirdly, there may be a wider range of forms to express a greater range of meanings (for example, in an epistemic sense gaining in addition to WILL, there could be PROBABLY, PRESUMABLY, etc.; in the discourse-oriented domain, a range of ways of making requests, more or less polite - WOULD YOU LIKE TO versus DO YOU WANT TO, for example).

Of this hypothetical¹⁵ developmental picture a core-meaning approach could only capture something of the second aspect, since it ignores the plurifunctional nature of the forms which the children must come to discriminate. This is a central issue to which we will return in the discussion of the experimental tasks, and in our synthesis of insights from the naturalistic and experimental results.

To refer briefly back to Table 4.3, there are a few points we would make in passing. First, the forms CAN and WILL are the two most used forms in all three studies. CAN is the auxiliary modal with the greatest range of uses (compare for example the range of dynamic and

discourse-oriented meanings of CAN with one of its paraphrases KNOW HOW TO). WILL is used to express different aspects of futurity as well as having discourse-oriented uses, and is much used as a marker of intentionality. Much more will be said about both these forms. A point of minor interest is that the fifteen most frequent forms account for 86% and the fifteen most infrequent forms account for 0.7% of the overall total. The greater burden for expressing modality is expressed by the major auxiliary modals - excluding MUST and MAY (which fits in with previous studies cited at 2.5 above) and we will see that there are signs of their weakening in the system as a whole - as well as the semi-modals HAVE (GOT) TO, NEED (TO) and BE GOING TO. Otherwise, the modal lexical expressions, I/YOU THINK, I WANT, and I KNOW are well represented. It turns out that the classical modals account for 57.78% of the overall total.

We turn now to a consideration of the children's usage when considered under the different kinds of modality, and the different uses within each modality.

(ii) Epistemic modality

We can see in Table 4.4 the distribution of epistemic uses for the children. The total number is 147 which is 5.74% of the cumulative total for the four children. We do not know how this proportion compares with adult speech in our own data, and Wells' (ibid) data on adults simply gives the distribution of adult forms and not adult meanings. However, there do seem to be differences between the children themselves:

Janet 2.3%	Simon 7.5%	Aileen 5.1%	Tim 10.5%
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The boys use a higher proportion than the girls do and this effect seems stronger than the age difference which is also present:

Sex \bar{X} = 3.7% girls versus 9% boys and Age \bar{X} = 4.9% younger versus

7.8% older. This is the only kind of modality in which we get such a simple picture, but it must be stressed that it would not be appropriate to draw strong inferences from proportional data which have not been derived from a standardised situation. Other modalities show relatively greater differences and idiosyncratic factors probably need to be invoked as well.

Table 4.4: The Distribution of Epistemic Modals

	JANET				SIMON				AILEEN				TIMOTHY			
	Pres	Past	Pres	Past	Pres	Past	Pres	Past	Pres	Past	Pres	Past	Pres	Past	Pres	Past
	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg
MUST		1		6					1					1		
HAVE TO	1								1							
SHOULD	2			1					2				2			
MAY				2												
<u>might</u> (MIGHT)	1		12	1	2		3	8					4			
COULD				1					1							
WILL				3					4							
<u>would</u>				16									1			
CERTAIN									2							
CERTAINLY	1								1				1			
SURELY									1							
DEFINITELY				2					2	2			3			
MAYBE	1			6									7			
PERHAPS				2									1			
PROBABLY	9			2					2				12			
PRESUMABLY				1												
SEEMS									2				5	2		
DOUBT													1			
LOOKS AS IF													2			
Total:		16			57					32				42		

Some other minor breakdowns of the figures are also of interest, see Table 4.5 below.

	Janet	Simon	Aileen	Timothy
Auxiliary forms % : range	31.3:4	77.2:8	62.5:6	19:4
Non-auxiliary forms % : range	68.8:3	22.8:5	37.5:6	81:9

Table 4.5: Relative proportion of auxiliary and non-auxiliary epistemic uses

If we look at the proportion of frequencies, then there is neither any interesting age nor sex effect, because for example Janet and Timothy are similar in using more non-auxiliary expressions. However, looking at the data another way yields a more interesting picture. It seems as though we have a slight trend towards a use of a widening range of non-auxiliary usages with age. The younger versus older totals are 8 versus 15, but these totals are inflated since the children use some of the same forms - the absolute increase with age is from 6 uses to 10 uses.

Perkins (ibid) would suggest that the non-auxiliary forms are a later acquisition. However, our data would indicate that this development is more precocious than Perkins would predict. In his list of forms used up to twelve years, Perkins refers to only 3 forms, PROBABLY, MAYBE and PERHAPS, and we would be able to add eight more to this list¹⁶. While the first two are also the most highly used (25 and 14 respectively) in our data, DEFINITELY, SEEMS and CERTAIN(LY) are more used than PERHAPS by our children. In addition, the children produced one or two of the following: SURELY, PRESUMABLY, DOUBT, LOOKS AS IF. We would not be able to say when this non-auxiliary usage begins, because nobody else in the literature has reported looking at it.

We do have a little more information about the epistemic auxiliaries though: Wells (ibid) reports the use of MIGHT, MUST, MAY and SHOULD. It seems that he does not distinguish 'futurity' and 'epistemic' WILL, as he has only one category 'predictive', so for our purposes this information is lost. Other auxiliaries our children have acquired are HAVE TO, could and would. The latter two are secondary modals, and on Perkins' account, would therefore be acquired later. HAVE TO would be characteristically Scottish on this usage. Together with MUST, SHOULD, CERTAIN(LY), DEFINITELY, SURELY (unreal form) we have the necessity

modals which are used rather less than the possibility and prediction uses. (Necessity 33, Possibility 52 and Prediction 58.) Our uses of MUST, 9 in all, account for 60% of the total uses of MUST in the data, with two forms with have, and it is perhaps in this epistemic usage that this form is chiefly being retained. We have mentioned the advance of HAVE TO in discourse-oriented modality for example. Our data contrast with Perkins' in that three-quarters of his instances of MUST were deontic and not epistemic (16/21).

We have also previously mentioned the retreat of MAY in the face of might (MIGHT), postulated for Scottish English (Miller, 1980). It seems unlikely that the children are treating MIGHT as a tentative, secondary form, since they use this much more than could and would (31 times). An alternative expression of possibility lies in the use of the related adverb MAYBE, used 14 times. With MIGHT and MAYBE, a total of 44 instances, the children seem to have little need of MAY: in fact the two instances are from Simon alone¹⁷.

Janet has the fewest in number and smallest range of epistemic modals. Apart from missing MAY, she also does not have could and WILL/would. However, Timothy is nearly equally thin on the auxiliaries, missing HAVE TO but having an instance of would. As we've mentioned above, both these children used more non-auxiliaries, and their favourite expression was PROBABLY. Timothy however used the greatest range of non-auxiliaries: the paucity of forms in Janet's case may be due simply to her preoccupation with roles, status, etc., and probably reflects no inability with this kind of modality. The most striking correlation between context and usage occurs with Aileen in Session Five when she is constructing a game which is complicated: this occasions 22 epistemic remarks. Otherwise Aileen shows a consistent spread of uses, apart from a preponderance of might (not) (11 uses). Simon is striking in the total number of epistemic utterances, heavily loaded on two uses - MIGHT (15) and WOULD (16). It is the use of the latter which really distinguishes him. The use of would has been supposed to be shaky even after the age of 5 (Kuczaj and Daly, 1979), and this presumably covers both the unreal and epistemic forms. As we will see there are many examples of Simon's using unreal would as well, but it must be said that these two uses are not always easy to distinguish. Nevertheless, despite these theoretical difficulties, it must be said

that it is the use of this form which partly characterises Simon's competence as advanced.

(iii) Discourse-oriented uses

The cumulative frequency data is shown at Table 4.6. We will return to details of this below, but first we would summarise some of the observations derived from this, as follows:

	Janet	Simon	Aileen	Timothy
Total number of utterances	298	97	199	106
As proportion of all modal expressions	42%	12.7%	31.9%	22.7%
Range of uses	44	30	47	32
<u>Sub-types as % of whole</u>	%	%	%	%
Obligational i)	19.8	7.2	23.6	15.1
Regulatory	15.4	19.6	23.1	23.6
Grant permission	5.0	6.2	4	2.8
Request permission	6.4	11.3	9.5	9.4
Request for action	22.1	29.9	13.6	27.3
Undertaking	12.1	4.1	14.6	9.4
Offer	18.8	21.6	9.5	12.3

i) Total for obligatory, command and commentative.

Table 4.7: Summary of discourse-oriented uses

The first three rows of Table 4.7 indicate a number of different phenomena. First, it is clear that the girls have a higher total number, greater proportion and wider range of uses than the boys. This is, however, not a simple relation between these three statistics, since for example, with a lower total number of utterances than Janet, Aileen nevertheless managed to produce a wider range; and with a similar actual number of utterances, Timothy used proportionately more discourse-oriented utterances than Simon. Also the breakdown into sub-types shows a more idiosyncratic pattern. However, we are satisfied that discourse-oriented modality is more salient in the girls' data.

Table 4.6: The Distribution of Discourse-Oriented Modals (to be cont'd.)

	JANET		SIMON		AILEEN		TIMOTHY	
	Aff.	Neg.	Aff.	Neg.	Aff.	Neg.	Aff.	Neg.
<u>Obligation</u>								
MUST	2		1					
SHOULD					1			
WANT	5	1			4	2		
HAD BETTER					2			
HAVE GOT TO	3							
will HAVE TO	3				7		1	
HAVE TO	5							
WILL	4		2		7	2	6	
BE GOING TO	17		2		5	1	6	
<u>Command</u>								
CAN	12		2		13			
<u>Regulative</u>								
IS TO			3		2		2	
BE SUPPOSED TO			1		5			
CAN	14		3	3	3	9	5	1
BE ALLOWED TO	2	2	1	3	1		2	
HAVE TO	2	1			3		9	1
<u>had to</u>					1			
HAVE GOT TO	14	1	1		16			2
SHOULD					2		2	
<u>Idiosyncratic Regulative</u>								
CAN	3							
MEANT TO BE			4			1		
HAVE GOT TO	4				2			
HAVE TO	2				1		1	
SHOULD	1							
<u>Commentative</u>								
HAVE GOT TO	6						2	
HAVE TO	1				1			
<u>had to</u>							1	
<u>Permission</u>								
MAY	1							
CAN	12	2	2	4	2	4		3
reported					1	1		
in tense sequence					1	1		

Table 4.6 cont'd.

	JANET		SIMON		AILEEN		TIMOTHY	
	Aff.	Neg.	Aff.	Neg.	Aff.	Neg.	Aff.	Neg.
<u>Request/Suggestion for action</u>								
CAN you	18		7		9		3	
<u>could</u>	1		6		3		9	
CAN I	12				3		3	
<u>could</u>	1		1				5	
WILL	14		3		1		1	
<u>would</u>	1		1		2		1	
BE GOING TO					1			
LET'S	5		5		5	1	5	
WHY DON'T YOU	1				2			
YOU WANT TO	1							
WOULD (you) LIKE TO			3					
WHAT/HOW ABOUT			1				1	
I WOULD	1							
SHALL WE	11		2				1	
<u>Undertaking</u>								
SHALL						3		
WILL	31	2	4		14	1	8	
- in apodosis	3				9		2	
BE GOING TO					2			
<u>Request (Permission)</u>								
MAY	9		1		1		4	
CAN	9		10		14		2	
- <u>could</u>					2		4	
- in tense sequence	1							
LET					1			
CAN I ASK					1			
<u>Offer</u>								
SHALL	22		4		4		4	
WILL			5		2		1	
WANT	6		2		3		1	
WANT TO	3		2		2			
WOULD LIKE	6		5		2			
CAN	6		2		4		5	
<u>could</u>	3		1				2	
CAN IF YOU WANT TO	9				2			
WHY DON'T WE	1							
DARE					4			
Total:		298		100		187		102

The two extremes are really represented by Janet, who with a 42% proportion shows her preoccupation with relationships and the different roles adopted in discourse, and Simon with 12.7% who we have seen (and will still see) to be more concerned with making judgements about circumstances etc. Aileen and Timothy fall between the two, although we would refer to the very wide range of uses which Aileen marshalls (which occurs predominantly in her most productive Session, Five).

The distribution of the different uses is explained by the kinds of activities and relationships the children were involved in. For example, the obligational uses: Janet and Aileen used proportionately more than the boys did. Janet, even with adults, loved to be in a position of dominance, of authority, quite happily telling adults what to do. Aileen was most often with her younger sister and even with her friends she was mostly in control. Simon scarcely ever bossed anybody around and Timothy would try to keep his younger brother at bay, but was tactful and polite to everybody else. His great interest in board games is represented in the higher proportion of regulational uses.

The children did not give permission much, nor did they seem to need to ask for it much. Requests for action were much more common. Aileen's lower total here can probably be accounted for by referring to her greater number of obligational uses. What this means is that she was far more likely to tell somebody that they had to do something, than suggest that they did it!

One could expand the discourse-oriented category by adding the frequencies for the first and second person subject with all the modal verbs, but I have not extracted these frequencies from the data. However, what this figure would yield would be a picture of the degree of speaker and hearer reference, losing the determining deontic and performative elements of the discourse-oriented kind of modality. And this index of speaker and hearer reference would only really be interesting as part of a specification of the degree to which the children's language is context-bound, or more loosely, makes reference to the immediate context. This is the more interesting question. A consideration of the session summaries should show the children's involvement in practical activities. We will refer to this issue again, having made some preliminary remarks in the section immediately above.

We turn now to some brief observations about the cumulative frequencies of specific categories (see again Table 4.6). We notice the paucity of occurrence of MUST (Janet 2, Simon 1); if we take both the obligational and regulational uses, we find that HAVE (GOT) TO is far more common: Janet 42, Simon 1, Aileen 30, Timothy 13. (We have made observations about Simon's reluctance to exert authority.) Interestingly, HAVE GOT TO is more used than HAVE TO in this context, and we shall see that the reverse is the case with dynamic uses. Our data would seem to lend credence to Miller's (ibid) claim about the weakening of MUST and rise of HAVE^{GOT} TO in Scottish English. However Perkins' (ibid) data which shows a parallel paucity of MUST relative to HAVE (GOT) TO would suggest that this may be a more general process, at least in children's language. However, the actual number of occurrences he reports is higher than our total (21: 1.15% against our 15: 0.59%). The rarity of SHOULD (2 instances) and HAD BETTER (2) may be explained as their being more adult forms. We will be interested to see whether this rarity means that children have comparatively more difficulty in manipulating these forms in tasks.

With the regulational uses, the children are slightly less likely to use forms which convey what is possible or permissible within the rules (52 uses) viz CAN, BE ALLOWED TO than what is necessary or obligatory within the rules (66 uses). I don't think this has any specific cognitive implications: it's not that the children cannot think about the former, it's that they are more likely to point out during the course of a game where the player does not have a choice, to enforce the rules. However, it is the case that necessity forms were the rarest in epistemic modality too. Of the different uses distinguished here, CAN is most commonly used for possibility and HAVE GOT TO for necessity, although HAVE TO is well-represented as well. BE ALLOWED TO is the next most common.

Simon and Timothy were the only children at all likely to use could as the tentative form in requests (6 and 14 respectively). This is the more distant, politer form and accords with the subjective impression that Simon and especially Timothy were the politer of the children¹⁸.

The other rarer request/suggestion forms include the non-auxiliary expressions WHY DON'T, WANT TO, WOULD LIKE TO, WHAT/HOW ABOUT, and I WOULD - the last for example we mentioned Janet's using. These uses are not mentioned at all in the literature. Also, Janet used far more

shall we ...? and this may be because she has some facility with SHALL here seen particularly in the interrogative form (but see also the section on WILL below) which the other children do not possess to the same degree.

However, Janet does not use the form SHALL in giving an undertaking: Aileen is the only child who uses this form (and it is really as a refusal). The form most commonly used in undertakings is WILL, sometimes in the main clause of a conditional. We mentioned Aileen's marginal use of BE GOING TO with this meaning.

The most favoured form for making offers is SHALL, principally used by Janet. It will be remembered that it is in this form that SHALL is principally meant to survive. But the other children are likely also to make an offer with WILL, which is the Scottish form. The much higher proportion of SHALL (97 in all) which Wells (ibid) reports as being used performatively must reflect a dialect difference. He only mentions WILL as a performative request, omitting to mention it as an offer, which is Scottish anyway, but we do not know whether he would accept a WILL of undertaking. We also have six other ways of making an offer, and the most striking omission from Perkins' forms is WANT (TO) which is widely used in this sense and also boulomaically. (It seems he deliberately excluded these forms from his analysis.)

We noted in our session discussions that Janet once gave permission with MAY. She was the only child to do so and did this when playing the role of an adult. When making requests, she and Timothy showed a nearly equal preference for MAY as CAN, but Timothy used the politer form of CAN, i.e. could as often as MAY. The two other children simply showed that they could use MAY (with only one instance each), but obviously preferred CAN. So MAY appears to be weakening in its deontic as well as its epistemic uses.

We also have our only instances of DARE, used very specifically as a threat by Aileen (to her sister Fiona): don't you dare... . Perkins reports only two uses in his data, and WELLS says there were none up to 42 months.

(iv) Dynamic Uses

The cumulative totals for the different uses by the individual children may be seen in Table 4.8. We will draw some more general observations before returning to details on this chart.

	Janet	Simon	Aileen	Tim
Total number of utterances	192	255	154	115
As proportion of all modal utterances	27.0%	33.5%	24.7%	24.6%
Range of uses	28	27	30	27

Table 4.9: Summary of dynamic uses

Simon had the greatest number of dynamic utterances (255), and proportionately the highest too (33.5%). In actual number, the two younger children had rather more than the older children, as well as a higher proportion. Aileen and Tim had nearly equivalent proportions (24.7 and 24.6 respectively) and with 30 usages, Aileen has more even than Simon: however, there is little difference between the four children on this latter statistic.

To refer to details of the forms (Table 4.8)—dealing with the necessity forms first. We find a paucity of uses of MUST with the boys managing a total of 3. We will see that there is really a much greater dependence on HAVE (GOT) TO. All the children used the unreal or tentative form of MUST, i.e. SHOULD, but it is Simon who seems to have a particular fondness for this form (70 in total) especially in the weaker 'consultative' sense which we distinguished, although the other children have this sense too. However Simon uses this form to the total exclusion of HAVE (GOT) TO, where the other children have a much more balanced picture.

In the dynamic usage we have more HAVE TO than HAVE GOT TO (30 to 15) which is precisely the reverse of the discourse-oriented uses. Fully half of the HAVE TO's occur with future WILL, but they are not restricted to this futurity use, as has been suggested by Perkins (ibid, p. 246). It will be remembered that it is possible to explicitly mark future time with HAVE TO, but not MUST, since it is a semi-modal. (The occurrence of WILL is coded on the WILL of futurity uses as well.) Once again we have evidence for the rise of HAVE (GOT) TO against MUST.

Table 4.8: Distribution of Dynamic Modals

	JANET				SIMON				AILEEN				TIMOTHY			
	Pres ₁ +	Pres ₂ -	Fut +	Fut -	Pres +	Pres -	Fut +	Fut -	Pres +	Pres -	Fut +	Fut -	Pres +	Pres -	Fut +	Fut -
1 MUST																
SHOULD	3	1			1	10	1		4	3			2	2		1
- weak necessity	2					57			6				5			
HAVE TO	3	2	7						3		6	3	3	1	2	
HAVE GOT TO	6								5				4			
BE BETTER			1			2							3			
HAD BETTER	5								1	1			1			
BE SUPPOSED TO	1	1				4		1	3							
MEANT TO BE						3										
BE FORCED TO																
NEED	6	3				8	1	2	7				6	1		
NEED TO	6	1	5			1	2		2				2	1		
2 BE ABLE TO	2		2				3		2		1	1	3		2	1
could past																
CAN ability	23	21		1		28	29		28	18	2		10	6		
tent/unr. could ability	3					4	2		1				1	2		
CAN circumstantial	35	9				29	8		13	3			24	3		
could circum: past	7								1							
could unreal/tentative	2					21	2		1				10	1		
could weak/suggestion						8							2			
KNOW HOW TO	2					1	2		1				2			
MANAGE																
Existential CAN								5	3							
might																
BE ALLOWED TO													1			
3 WANT	9	6				1	3	1	3	5		1	3			
WANT TO	7	3	1			6			10	2			8			
WOULD LIKE	2					2			2							
I WISH	3					1			2							
I HOPE	1								3			1				
LET'S HOPE									2							
WOULD RATHER									2							
Necessity	53					94			2							
Possibility	107					144			2							
Bouloumaic	32					17			3							
Total:	192					255			154				115			

₁ = Affirmative ₂ = Negative

Janet, Simon and Tim use BE BETTER, which is not reported in the child language literature. It occurs nearly as frequently as HAD BETTER (6 against 8); and then there is BE SUPPOSED TO which Simon uses in the past form. Other forms not reported are MEANT TO BE and FORCED TO BE, which are unique to Simon and Aileen respectively.

Although we have a total of 54 instances of NEED we have no instance of true modal NEED, rather, simply have instances of the related sense of 'being under necessity or obligation to' (16) and the different sense 'stand in need of, require' (38) which takes a direct object. Janet and Simon have uses with WILL. Perkins (ibid) notes five instances and Wells (ibid) none. This may be a Scottish English effect.

Referring now to the possibility forms, BE ABLE TO occurs far less frequently than CAN, and occurs more frequently collocating with WILL (7 present tense and 10 future tense forms). It is suggested by Palmer to be more formal than CAN and used where explicit marking for future time is required, and this seems to be borne out by our data. However, we did not find any circumstantial uses of BE ABLE TO, which Palmer cites for adult data.

The uses of CAN present a complex picture, best summarised as follows, in Table 4.10 below.

	Affirmative	Negation
CAN ability	89	77
circumstantial	101	23
<u>Could</u> ability past	-	2
tentative	9	4
circumstantial past	7	1
tentative	34	3

Table 4.10: Summary of CAN uses

We refer to grouped data, because it seems the children behave in essentially the same way. We also refer, slightly unusually, to the affirmative and negative uses separately, since an interesting pattern is shown here. Specifically, the children are much more likely to talk about what they can't do rather than what is circumstantially not

possible, whereas they are more likely to comment on what is circumstantially possible than what they are able to do. This pattern is seen most clearly with CAN but repeats itself with could to a lesser degree. Children do not seem to be so preoccupied with ability and achievement as they seem to be in their third year of life: perhaps the reason for the preponderance of negative ability forms is that these could possibly have the function of being an indirect plea for help. This would not be a recognised implicative use though. The proportion of 'ability' to 'circumstantial' uses (1.31:1) is roughly the same as that reported by Perkins for his six-year old subjects (1.41:1) and similar to that reported by Shields (1972). Could is used far less frequently than can, with the tentative circumstantial uses being the most frequent. The tentative uses of could are more common than the past uses, and the past ability meaning is only ever used by Timothy. We must also refer to the marginal use which I discriminated as 'weak possibility-consultative' which was principally used by Simon, but also had two uses by Timothy. Aileen had three instances of Existential CAN.

The related expression to ability CAN, KNOW HOW TO is used, albeit infrequently, by all the children. It is only Simon who uses managed, another related term. Dynamic might has only one use, by Timothy. None of these uses is mentioned in the child language literature, but our last possibility form, BE ALLOWED TO, used by Simon, is mentioned.

Although Perkins mentions boulomaic uses in his theoretical discussion, he does not cite instances in his children's data. There is no reason to suspect that they do not occur, since for example we have 39 instances of WANT and 32 of WANT TO, and these could hardly be absent from older children's data. WOULD LIKE has 6 instances; Wells notes 20 instances of this in his data; WOULD RATHER is less common, used only by Aileen. It is Aileen who uses the most boulomaic expressions (33) and Tim the least (11). The other expressions used are I WISH, I HOPE and LET'S HOPE.

(v) WILL, SHALL and Futurity (Table 4.11: Cumulative frequencies)

While we would expect children to use the WILL of 'volition' to the extent that they are monitoring what they themselves are doing,

we would also be interested in the related non-volitional basic future WILL. The same would apply to BE GOING TO. A summary of the children's usage in Table 4.12 shows us that the volitional forms are more than twice as common as the basic futurity forms. Janet is the most interested in intentions, while Simon is the most interested in the 'basic' future. He does, however, still use more 'volitional' than 'basic' forms. The range of frequencies is greater for the volitional than for the basic forms. Overall WILL is more common than BE GOING TO, with BE GOING TO of present cause' (basic) being considerably less used than the other three types.

	WILL vol	BE GOING TO vol	TOTAL	% of overall utterance total	WILL basic	BE GOING TO basic	TOTAL	% of overall utterance total
Janet	88	45	133	18.7	28	7	35	4.9
Simon	34	42	76	10	38	17	55	7.2
Aileen	52	46	98	15.6	39	8	47	7.5
Timothy	60	13	73	15.7	27	11	38	8.2
	(234)	(146)	(380)		(132)	(43)	(165)	

Table 4.12: Volitional and Non-volitional Future WILL and BE GOING TO

It will be noted that Timothy used proportionately few BE GOING TO volition, partly because of his predilection for the construction I think I'll We might suppose Simon's preference for expressing basic future parallels his preoccupation with epistemic and dynamic uses and relative neglect of discourse-oriented uses.

However, more interesting is the breakdown in the forms cumulatively by grammatical person (Table 4.13).

		Person singular			plural			Total
		1st(%)	2nd(%)	3rd	1st	2nd	3rd	
WILL	volition	184 78.6	4 1.7	17 7.3	28 12	—	1 0.43	234
	future	14 10.6	30 22.7	64 48.4	21 15.9	—	3 2.3	132
BE GOING TO	volition	86 58.9	17 11.6	14 9.6	28 19.2	—	1 0.7	146
	future	3 7	3 7	30 70	4 9.3	—	3 7	43

Table 4.13: Frequencies of forms with subject persons, WILL and BE GOING TO

There are two complementary trends here. The volitional reading is strongest with the first person subject, more pronounced with WILL (90.6%) but still clear with BE GOING TO (78.1%). This is consonant with Haegeman's claim that the volitional reading is closely associated with the first person subject. 'Future' WILL and BE GOING TO have a low proportion of occurrence with the first person (26.5% and 16.3% respectively) but this is not completely absent indicating that it is not a purely distributional effect. However, the non-volitional reading is much more common with the third person subject, 50.7% and 77% for WILL and BE GOING TO respectively, this time more strong with BE GOING TO. Presumably this pattern of complementarity in usage arises because children would be more likely to talk about what they intend to do, and what is going to happen than to talk about what is going to happen to them and what a third party intends to do. It remains to be pointed out that singular subjects are more used than plural subjects with the same meaning (except for BE GOING TO future, with a small difference in the other direction), and second person plural subjects are universally absent; in fact this is so across all the futurity forms. The children seemed to have no cause to address interlocuters communally, except in a discourse-oriented sense (e.g. you will ... in an obligative sense).

Since we are dealing with Scottish children, we are surprised to find any use of SHALL apart from its formulaic use as an offer. However, we have 13 instances, but none with the second person, nor third person plural. Timothy is truest to his heritage in producing none whatsoever! Perkins reports that every use of SHALL was in the first

person subject interrogative environment.

There are few omnitemporal uses of WILL. We pointed out earlier that Aileen was the only child to use the 'habit' and 'insistence' senses of WILL though we have more with 'habitual' would. The related form USED TO is only used by Timothy, and Simon is the only child to use the rarer forms BE ABOUT TO and WILL GET TO.

We have only 8 uses of would in tense sequence. This is consonant with Miller's observations that the use of reported forms is infrequent, the precise words usually being used.

Once again Simon is conspicuous in his use of would, with 54 instances. Janet has 7, Aileen 11 and Timothy 19. One can only attribute this, as before, to Simon's fondness for thinking about the hypothetical. The past unreal form is extremely rare and Timothy shows no examples¹⁹.

The use of explicit conditionals with WILL and would is relatively low. Janet, Simon and Aileen have 7 each, with Timothy with 2 fewer. Janet has 2 uses of 'volitional' WILL in the protasis (if-clause); 'futurity' WILL is not used here (as the literature would traditionally predict).

Before we turn to a consideration of the final, radically different kind of modality expressions it would be interesting to have a passing glance at the children's differing use of the tentative/unreal forms of the classic auxiliary modals. It may be seen below at Table 4.14 (excluding the uses to express past time).

	Janet	Simon	Aileen	Timothy
<u>would</u>	9	67	11	26
<u>should</u>	9	71	18	12
<u>could</u>	10	46	8	36
<u>might</u>	1	15	11	6
Total	29	199	48	80
% of overall total	4.07	26.15	7.69	17.17

Table 4.14: Summary of use of tentative auxiliary forms

Janet has negligibly few tentative forms, and Aileen has somewhat more. The two boys use substantially more, so are we to ask whether there is a sex effect here? I would venture that this is not so, but when the subcategories are considered the differences could probably be explained as idiosyncratic. Specifically, Tim is interested in unreal possibilities, but he is also a very polite child, so that accounts for a good part of the high frequency of could. Simon is intrigued by unreal necessity (where the actualisation of the main verb is not strong cf Chapter Six for more discussion), and only slightly less so by tentative possibility with could and the unreal and epistemic would. I would also hypothesise that this particular aspect of usage correlates with personality type - although of course this is drawn impressionistically. Janet for example is characteristically down-to-earth, pragmatic and energetic, while in contrast Simon is dreamy, ideational and passive. They represent very different types, while one could not draw such strongly differentiated descriptions for Aileen and Timothy. There is more to say about this in the following section.

(vi) Modal lexical (cognitive) verbs

We refer to Table 4.15 in our discussion but consider first Table 4.16, which shows a summary of modal lexical verb uses.

	Janet	Simon	Aileen	Timothy
Number of modal lexical verbs	19	166	75	65
Proportion of total frequency	2.7	21.8	12.0	13.9
Range of uses	5	11	13	6

Table 4.16: Summary of modal lexical verb uses

There is a great range in the total number of utterances the children produced. Simon has more than twice as many as Aileen, with Janet lagging very much behind. More or less the same picture presents itself for the relative proportions. However, Simon does not have so great a range of uses as Aileen (this is because he uses four forms to a great extent) and Janet and Timothy use roughly half as many. It

Table 4.15: The Distribution of Cognitive Modal Lexical Verbs

	JANET				SIMON				AILEEN				TIMOTHY			
	Pres		Past		Pres		Past		Pres		Past		Pres		Past	
	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg	Aff	Neg
With first person singular subject																
THINK ...[-modal]	2	2			17	2			12		4		8	1	3	
...[+modal]	10				18	1	3		9	1	2		30	5	2	
... #					3				4							
WOULD SAY					7											
SUPPOSE	1								2	1						
BET	1															
WONDER					8		1						2			
EXPECT					1						1					
DOUBT									2							
SUSPECT									3							
SEE										1						
BELIEVE										1						
KNOW	2	1			5	25		1	9	13	1		1	4		1
BE SURE										3			1	5		
Other																
DO YOU THINK					44		1		5							
WOULD YOU THINK					4											
WH-DO YOU THINK					24				1				2			
WH-WOULD YOU SAY					1											
Total:					<u>19</u>				<u>166</u>				<u>75</u>			<u>65</u>

seems that we have no sex effect overall, and no age effect either, though this may be obscured by what is clearly an idiosyncratic use by Simon. We would hypothesise that the high frequency here is tied up with the high frequency of epistemic usage by Simon, where in the former he is really making explicit the frequency with which he is making judgements.

However, modal lexical verbs are not inevitably used to make judgements, for example while I THINK can be used to convey simple subjective uncertainty, which is how Simon principally uses it, it is also used as a polite deferential term which is how Timothy uses it to signal what he is going to do. (I think I'll ...). Perkins (ibid) found that significantly more girls than boys (61.4 vs 38.6%) used I THINK, which is precisely the reverse of our figures (boys 94 vs girls 46, see Table 4.3). This uncertainty and deference is not all the prerogative of girls, as Perkins suggests.

We separately categorised I THINK depending on what type of clause followed it, but even though we found that it was more likely to be a clause containing a modal (81 vs 51 in total) no generalisations could be drawn about the dependent clause (and hence the other expressions were not separately categorised). It is very obvious that it is only Simon who is at all concerned to get explicit judgements from his interlocutors (and this happened principally in the first session) and we could say that Janet doesn't care at all what other people think! It is Aileen who has the widest range of forms apart from THINK; forms unique to her include I DOUBT, SUSPECT, SEE, BELIEVE. Also strictly factive predicators KNOW and BE SURE were included, principally because they are non-factive when negated. Indeed it seems that the children were much more likely to use these forms in the negative, for example there were 18 I know's against 45 I don't/didn't know. Simon's particularly high use (26 instances) parallels his expression of subjective uncertainty with I think.

4.3.3 Summary of Conclusions

(i) General remarks

It seems that we do not have a developmental effect for the

children individually. This was possibly due to the children's age, where a longer time sampling may have shown some changes. The older children had fewer utterances, but their range of utterances was broader relative to their overall total. It is unlikely that the older children will in general be seen to be more advanced than the younger, partly because Simon especially is precocious. Sex differences where apparent, might just as well be a function of similar personalities covarying with sex. Our study is not absolutely comparable to any in the literature, although we are able to draw parallels with Perkins (ibid) and Wells (ibid). However, Wells dealing with younger children, focussed on auxiliary modals (and semi-modals), and interestingly, Perkins dealing with mainly older children found a much narrower range. Also, in restricting himself to describing the frequencies of the forms per se, Perkins inadvertently missed what we would consider interesting and potentially crucial details of usage. CAN and WILL seem to be the most used forms; the greater burden for expressing modality seems to fall on the major auxiliary modals, plus the semi-modals HAVE (GOT) TO, NEED (TO) and BE GOING TO. The children varied in their use of the tentative auxiliary modals, a portent of differences in usage.

(ii) Epistemic

There might be a trend towards age and sex differences here, where the latter involves the boys making greater use of this modality. The older children seemed to be beginning to make proportionately greater use of non-auxiliary expressions, which would be in line with predictions from the literature. However, the children seemed generally precocious in their use of these other modal expressions. There seemed to be a slightly lower use of secondary auxiliaries, apart from MIGHT, which together with MAYBE, seems to be displacing MAY. Although Timothy has the widest range of non-auxiliary expressions, Simon distinguishes himself with the highest total frequency as well as a precocious use of would.

(iii) Discourse-oriented

There is a striking difference between the children in the proportion of discourse-oriented uses relative to their total frequency: Janet has the highest, Simon the lowest, the two older children somewhere in between. We relate this to the children's preoccupations in

play and relationships. The girls use proportionately more discourse-oriented forms than other kinds of modality and discriminate a wider range of forms. Requests for action are much more common than for permission. HAVE (GOT) TO is far more common than MUST. The children were more likely to use necessity rather than possibility regulational forms. The boys used more tentative forms in requests. It is Simon who alone uses undertaking SHALL, and together with Tim and Aileen uses WILL of 'offer', but Janet does not use this form. MAY is weakening in its deontic sense too.

(iv) Dynamic

Simon has the highest total number of dynamic utterances and the greatest relative proportion (of all modal utterances), where Aileen has the widest range, but there is not much variation between the children here. There are few instances of MUST; SHOULD is much used by Simon. MUST seems to be replaced by HAVE GOT TO, and HAVE TO occurs relatively frequently with WILL. Another much used necessity form is NEED, but we have no specifically modal senses here (just the main verb senses). BE ABLE TO occurs relatively infrequently, always in its ability sense, and collocates with WILL. Much more used is CAN, where the 'ability' sense is used more frequently than 'circumstantial' (with the reverse being true in negation). Could is used less frequently than can, with a higher proportion of tentative uses than past ones. Other related forms KNOW HOW TO and MANAGED are also used. The most frequent boulomaic expression is WANT TO. Other expressions include WOULD LIKE, WOULD RATHER, I WISH and I HOPE.

(v) WILL, SHALL and Futurity

Looking at WILL and BE GOING TO first, the volitional forms are more common than the 'basic' forms, and WILL more common than BE GOING TO. The volitional reading is strongest with the first person subject; the non-volitional reading is more common with the third person subject. There is an absence of second person plural subjects across all futurity forms. There are a small number of instances of SHALL, used by three out of the four children, and also few omnitemporal uses of WILL. Would is little used in tense sequence, and Simon is conspicuous in his use of unreal and volitional would. Finally, the use of explicit

conditionals with will and would is relatively low, but every child shows some instances.

(vi) Modal lexical verbs

Simon uses the greatest number of these verbs as well as the highest proportion, but Aileen has the widest range. The two boys used I THINK more often than the girls, but differed in the way they themselves used it (the reverse of Perkins' results). Forms used only by Aileen include I DOUBT, SUSPECT, SEE, BELIEVE. The factive predicators I KNOW, I AM SURE are used mostly in the negative.

CHAPTER FIVE: SYNTACTICALLY-BASED TASKS

5.1 Introduction

While it is interesting and perhaps crucial to document naturalistic language data, it is of value to probe at different aspects of children's language through experimentation. While we know that children after about three years are unlikely to say what they can't say and tend not to make mistakes nonetheless we would like to know what children cannot say, what they will not say and what mistakes they make if we push them. How elicited language and elicited judgements relate to spontaneous usage is an issue which we will have to pick up at a number of points over the next three chapters.

I have been very careful not to describe the tasks detailed in this chapter as 'syntactic', because it is hard to see how we could constrain the basis of our judgements and constructions to being purely syntactic. However the constraints of the task are partly syntactic as I conceive them and as we shall see are not so obviously semantic as the tasks described in Chapter Six.

With these general remarks in mind let us pass firstly to the Construction-Changing Task and then to the Acceptability Task.

5.2 The Construction-Changing Tasks

5.2.1 Major's (1974) study

Another piece of pedantry is evident in the name of these tasks. When the reader finds out that this study is a partial replication of the work of Diana Major (1974) he will wonder why we have not simply referred to the tasks as 'transformation tasks'. The reason for this is that I have wished to dissociate myself from the transformational generative paradigm within which Major works. To be fair, Major talks about 'asking', 'converting' and 'completing' in her description of her procedure, and these are the sorts of terms I would use. However she unnecessarily straitjackets her initial description of her results by listing transformational rules, then saying "any response matching these abstract representations is included in the percentage figures" (p. 47). What she does not notice is that the abstract representations

(i.e. T-rules) are not an accurate description of the tasks at hand. For example, one of the tasks involves asking twenty-two questions of a hand puppet, e.g. Ask him if he can see the playground. The child is expected to respond Can you see the playground? This procedure is not to be equated with the rule "3. Question: Q - you - First Aux - VP => First Aux - you - VP" (p. 47) which is a transformation defined over a deep structure which has the 'Q' as trigger for the question transformation. The point is perhaps even clearer with negation: asking the child to negate an affirmative sentence is not adequately represented by a transformational rule defined over a deep structure which simply moves a negative element already present. In fact Major is simply making what was a common psycholinguistic error of attributing psychological reality to linguistic transformations. Because of her reliance on the transformational generative paradigm, Major attends to the formal attributes of the task to the detriment of some semantic considerations, as we shall see: while she thought highly of Palmer's (1965) work (p. 15), she had not the benefit of the semantic insights of his later work (1974, 1979) ¹. Details of this criticism should emerge in the course of our discussion.

What should be clear by now is that our study involved children changing constructions of affirmative sentences, and that it was based on Major's work. This study was conceived of as a preliminary study in the course of my research which would give us equivalent data to Major's in British English, but also as serving to give us some initial insight into the details of the child's system of modal verbs. It will become clear that the tasks are defined over auxiliaries, therefore other modal expressions are not included.

Major asked 44 children from kindergarten through third grade (from 5-8 years) to -

1. imitate fifty sentences containing various combinations of modal and other auxiliaries (Modal + Verb; Modal Progressive; Modal Perfect);
2. convert 19 affirmative sentences to negatives;
3. complete the Grammatical Closure section of the ITPA (no results are reported);
4. supply tag questions for 19 affirmative statements;
5. complete 37 tense sequence sentences (results also not reported);
6. ask 22 questions of a hand puppet (p. 44).

My tasks were similar to 1, 5 and 6.

While making some useful observations, Major's study has been and can be criticised on a number of grounds. The observations we will touch on in our discussion, but the criticisms need to be dealt with at once.

We have already noted Major's excessive reliance on the TG paradigm, although she does make some observations which transcend this. The developmental psychologist aware of the need to maintain optimum level of interest and attention would be dismayed to calculate that the task involves at least 147 items (not including the ITPA). Major does not mention whether there was more than one testing session: I would not ask children under seven to do more than 30 items of this type in one session.

Major refers to the items as selected by formal criteria, but describes them partly in formal and partly in semantic terms (p. 40). Fletcher (1975) notes that Major discriminates between must, and must be and must have where the latter are epistemic, and that she does not notice that this distinction is not limited to senses of must, even in her own data; nor do epistemic uses occur solely with what she calls auxiliary expansion. There are five other epistemic sentences in her data (p. 114-5) so she has not drawn a consistent semantic distinction. The same arbitrary selection of semantic distinctions is seen when she discriminates between conditional and non-conditional would and could. She does not justify selecting these modals in conditionals, since all the other modals can occur in conditionals too. It seems that she treats 'conditional' as a distinct meaning (p. 40) where in point of fact the meanings are the same in the non-conditional and conditional items (items 16/17, 18/19, p. 119). She does not mention whether conditional sentences were more difficult for the children to process.

The formalism of Major's approach brought problems with the construction of the items. Her procedure for constructing items was paradigmatic; to her list of modals and modal-like constructions, she added perfects and progressives. This yielded for example,

can _____ can be _____ -ing can have _____ -en

and we get what Major admits is a highly unlikely sentence: Sally can have chased the dog. She includes it in her imitation task because she wanted to present a full array of theoretically possible modal

constructions, and wonders what children will reveal about their language in processing this deviance (p. 42). This is prima facie not a useful way to find out about normal constructions, and indeed she is led to conclude that "the result of asking children to imitate unreal ... constructions is to throw them into a state of confusion" (p. 60-1). We mention similar difficulties with need and dare items later. Similarly two other "awkward" and "improbable" items with has to have and are going to have, included as possibilities from an abstract paradigm (p. 42-3) yield very poor imitation scores (p. 52)². She does ultimately recommend that items should be completely acceptable sentences (p. 111).

We must consider a criticism of Fletcher's (ibid) which, if valid, is also damaging to my own study. Major set herself the task of trying to determine at what age and in what order children acquire individual members of the modal class (p. 11). Fletcher points out quite reasonably that since the literature (e.g. Kuczaj and Maratsos (1975)) suggests that acquisition is well under way before 5, any study which does not begin until 5 is going to omit some crucial developmental information. Presumably the imitation task was meant to answer this developmental question in Major's study, where tasks of this kind are meant to involve the processing of the sentence through the internalised grammatical system (Major, p. 45) giving an indication of the level of developmental ability. Fletcher (p. 320) points out that results on the imitation task show that some kindergartners had difficulty with most items, and for some items difficulties occur up to third grade. This is the case even for 'unexpanded' items, such as we used in our own study. The potentially damaging conclusion is this: assuming that the experimental task is relevant to the notion of acquisition, if the acquisition of some modals is still continuing for some Ss then the question as to whether grammatical rules are globally learned and applied (one of the questions which he thinks Major further sets herself) cannot usefully be asked since it depends on the prior acquisition of all items in the modal category. Fletcher therefore considers it valid to discount the negation, question, tag and tense-sequence tasks which Major reports.

It would seem that Fletcher would want a child to have all the modal auxiliaries in his vocabulary before we can ask whether he

applies syntactic rules to them globally. This is not the case since the question could be asked of the system at any stage. In any event Major explicitly sets herself the more modest aim of establishing whether syntactic or transformational restrictions influence children's facility with them (p. 11). Major's own assessment of her achievement of purposes would serve as a further counter to Fletcher's criticism. On the acquisition question, Major says simply, "I do not believe that this question can be answered by studies of this sort" (p. 106), but she does not spell out the difficulties. Much more interestingly she suggests that children are aware of the syntactic restrictions of certain of the modals (which do not conform to regular question formation, etc.), insofar as they do not attempt to force regular patterns onto these modals, but may produce sequences with other kinds of deviances in their attempt to produce grammatical sentences (p. 106-7).

The question about conformity to rules is probably best asked of one modal at a time. Even if we apply Fletcher's criterion of perfect imitation, we find that the question and negation tasks are more difficult than the tense sequencing for the older children, but the younger children are able to come up with some appropriate responses on most items (p. 48-52). Intra-individual correlations between performances on different tasks are not available (nor indeed do we calculate them for our study). It seems then that Fletcher has discounted results which are of real interest. However Fletcher does make another valid point, that it is difficult in these results (KG imitation data) to unravel the effects of frequency of occurrence of particular forms in the children's dialect, variable length of the sentences and meaning distinctions like epistemic/non-epistemic. We hope to have taken adequate account of these factors in our study.

5.2.2 Design

5.2.2 (a) Subjects

The subjects were children from a middle-class fee-paying school, roughly evenly represented for sex. There were 9-13 children per year from Primary One, Two, Three, Five and Seven (roughly 5, 6, 7, 9 and 11 years of age). However it is not the same children represented in every item of the three tasks. This was for two reasons. The tasks

were carried out in two successive academic years and the second year I administered a revised version of the 'Past Time' task to become a Tense Sequence task. This yielded what I considered to be more reliable data, so it is the performance of the 1981 P3, 5 and 7 which is reported. The P2 data reported constitutes the performance of 10 of 30 children tested as part of another study³. P1 data is generally from the 1981 sample, except where there is an additional item from the previous year's sample. It is presumed that the rapport built up with the 1981 P1's was better than the previous year's which should have been reflected in better performance on the tasks. Different years' subjects are superscripted ° and ' for 1980 and 1981 respectively.

5.2.2 (b) Selection and Construction of Items

While this study was intended to be a partial replication of that of Major (ibid), it was initially conceived more broadly insofar as I was concerned to test a wider range of semantic uses than her more formal approach would allow. I was initially concerned to construct items which were accounted for in Palmer's (1979) model. This yielded a set of 42 items, closely parallel to actual items Palmer cites but appropriately contextualised to keep the children's interest, and simplified where pilot-testing showed it was required.

As each item was to be changed three times, a subset had to be chosen for the younger children since their attention spans could not have been expected to hold over the whole set. Major however does not seem to have made any concessions in this direction, but I decided to select a subset of items randomly, and these were used with P1' and P2' (P1° were given an even smaller, slightly different set).

The quest for comprehensiveness did not yield fruitful gains. For example, WILL has many different uses, but is one of the regular modals and turned out to be consistently easy for the children to manipulate. A comparison of the range of meanings when compared to Major is not really productive since she used different sentences and slightly different range of meanings for the three different tasks, whereas my list was the same across the three tasks, for consistency. The range of uses which my items covered can be summarised as follows:

<u>will</u> power	<u>would</u> habit	<u>can</u> ability
<u>can</u> command	<u>be able to</u> ability	<u>could</u> ability
<u>should</u> obligative	<u>must</u> circumstantial	<u>shall</u> undertaking/future
<u>may</u> permission	<u>may</u> epistemic	<u>might</u> epistemic
<u>ought</u> obligative	<u>would rather</u> (dynamic)	<u>had better</u> obligative
<u>dare</u> (dynamic)	<u>need to</u> (dynamic)	<u>have to</u> circumstantial
<u>be going to</u> volition	<u>are to</u> obligative	<u>be supposed to</u> regulative

There are two epistemic uses, eight dynamic, eight discourse-oriented and three futurity uses. The category of modal lexical (cognitive) verbs is not included in this task since they do not enter into these constructions (i.e. think, know, suppose are not part of the auxiliary system, nor are they closely related semantically, like the semi-modals need to, have to). See Appendix V for complete list of sentences.

5.2.2 (c) Procedure

There were three tasks, each with different constraints, and the instructions were given differently to the P1 and P2 subjects versus the rest. This was partly to make it a game but more importantly that they might fully understand what was required. Ss were tested individually.

Initially Ss were told they were going to listen to E saying a number of things and they were going to be asked to change round what she said in ways which would be explained to them.

1. Questions: The older subjects were asked to change what E said into questions. It seemed that the P3 Ss did understand the word 'question'. Because the younger Ss did not always understand this word, instructions to them were that they were to pretend to be a bit deaf: when E said something to them, they were to ask her the same thing back, to check whether they had really heard it properly. (A number of them found it a huge joke.)

The Ss were all given a couple of examples and then two or more practice items for them themselves to try, easy items with primary auxiliary question markers (e.g. She likes games: Does she like games?) When the Ss were satisfied that they understood the task, the test items were administered. Responses were recorded onto cassette, to speed up the administration of the task and minimise boredom.

2. Negation: The three older groups of Ss were told that they were going to hear the same sentences again, and this time they were to change them to say that what E said, wasn't so. The P1 and P2 Ss were told that now they had to pretend to be difficult children (again hilarious to some), and every time E said something they were to say "No, that isn't so". Immediately examples and practice was given until the Ss felt confident enough to start.

3. Tense Sequence: On this task, the revised method was not to try to explain any change of time expression, but all the Ss were told that they were simply to complete a pattern. If E said "I know X" they were to start by saying "I knew" and finish off the pattern. Once again examples and practice was given.

The items were administered in a fixed random order; at the end of each task Ss could have a second attempt at items on which there was initially no response.

One quite important difference in method between the present study and that of Major is the omission of an imitation task. From Major's results it seemed that a ceiling effect would enter at the P3 level and the task would be of limited interest - to my subjects and myself. However, the advantage of including this measure would be as Major suggests that performance on the other tasks should be unaffected by processing variables. However the average length of my items was slightly shorter than Major's ⁴. I hope thereby to have obviated any undue processing effect.

5.2.3 Results and discussion

Here we are concerned to address a number of questions to the data, as we suggested in our introduction to the experiment. At the end of each section we briefly compare and contrast our results with Major's.

5.2.3 (a) Question task

The first and most general question which we would address here is - is there a developmental effect in the way in which children construct questions? In categorising the children's responses I

followed closely Major's system which she draws partly from Menyuk's (1969) stages, posited from observational data. The system I used is the following (with sources indicated).

1. No inversion, with rising intonation (Menyuk), e.g. You must go to work?
2. Redundancies
 - (a) do - subject - modal (Menyuk), e.g. *Do you must go to work?
 - (b) Regular modal - subject - modal (Menyuk), e.g. *Will you must go to work?
 - (c) Related modal - subject - modal (Menyuk), e.g. *Should you must go to work?
3. Substitutions, by
 - (a) non-modal auxiliaries (Major), e.g. Do you go to work?
 - (b) unrelated semi-modal⁵ (Macdonald), e.g. Are you going to work?
 - (c) unrelated modal (Major), e.g. Might you go to work?
 - (d) related/paraphrase modal (Major), e.g. Do you have to go to work?
4. Standard - formal equivalent (Major/Menyuk), e.g. Must you go to work?

The use of such a fine-grained analysis is justified in the developmental pattern which it does show. An important point to note is that in some cases a 3(d) response is as appropriate as a 4, where for example, epistemic might and may do not usually occur in questions, but some equivalent form appears instead (see discussion below). It is with the 'regular' modals, where there is a regular relationship between the declarative and interrogative forms, that the criterion of 4 would be seen as the correct response. The types of responses (proportionately) for the regular uses of will, would, could and must⁶ are shown in Table 5.2.1.

Type of response %	No response	Other	No inversion	#Non-modal	#Semi-modal	#Modal	#Modal	Standard
			1	3a	3b	3c	3d	4
P1' n = 40	37.5	2.5				7.5	22.5	30
2' n = 40	10.	5.	2.5		7.5	7.5	15	52.5
3 n = 36						8.3	8.3	83.3
5 n = 40	2.5			2.5		15.0	15.0	65
7 n = 52						9.6	23.	67.3

Table 5.2.1 Types of response with regularly-formed questions will, would, could and must.

The picture shown here accurately reflects what appears to be happening with all the regular modals. The interpretation I would offer is as follows. The P1 children's high proportion of 'no-responses' probably reflects an inability to grasp essentially the nature of the task, because these items should have been the easiest. However when they do attempt to answer, nearly a third are correct, and it is noteworthy that on all the regular modals, there were no redundancy-type responses, which shows something about the ease of the task at this level. The two instances of 'no-inversion' responses could perhaps be seen to be idiosyncratic. The P2 Ss seem to understand the task better: there are fewer 'no attempts'. There is a wider range of attempts, slightly more than half being correct. The P3 children attempted all the items; they seemed to have a close grip on the formal requirements of the task, and had the highest proportion of standard responses (83.3%).

A slightly different picture emerges with the older children. The proportion of absolutely correct responses fell (to 65 and 67.3%) with the P5 using more non-equivalent modals and the P7's using more equivalent modals. This may indicate a degree of flexibility in their response on the task. One can only say this having seen what clearly seem to be qualitative changes from P1 to P2 and P2 to P3. There is not a deterioration of the quality of response, but perhaps greater consciousness of the constraints of the task. This developmental pattern appears to be consistent across all the items but it would not be appropriate to present a grand cumulative table (since our data would not allow this).

We noted that there were no redundancy-type responses on the regular items. This is not a particularly productive category, with only a total of 10 instances, 7 of which occur with ought to, 1 with epistemic might and 2 with be supposed to. Examples include,

Do you ought to be ashamed? (P3)

Should you ought to be ashamed? (P5)

Would you might come back and play with me again? (P1)

Do you supposed to wash your hands? (P2)

Even the P7 Ss are not exempt from this effect, with ought to. We return to a discussion of the reasons for this effect below.

We referred to the 'regular' uses of the modals - the formal

characteristics of regularity and irregularity are intrinsic to the uses, not to the forms (as Major seems to suggest). Notice for example the relationship between the following declarative/interrogative sentence pairs:

- 1a. I can climb a climbing frame: Can I climb a climbing frame?
- b. You can leave me out of this game: Can you leave me out of this game?
- 2a. You may call your friend in to play: May I call my friend in to play?
- b. You may like the games we're playing: *May/will you like the games we're playing?

In the (a) sentences, the interrogative correlate at least potentially corresponds to the same use, i.e. can ability, may give/ask permission. For the (b) uses, the relationship is more complicated: in 1(b) the very specific can command, although not rare in our observational data, nevertheless has no interrogative correlate, most closely related in function to a request for action, but potentially also a question about circumstantial possibility. For 2(b) we find that there is no formal equivalent for questioning epistemic modality. Palmer (1979, p. 56) thinks that we rarely question epistemic modality, but surely this only applies to maintaining the precise form. For example, we could just as well say Do you think you might/will like ...? but this form is so far from the formal equivalents the other items generated that the Ss would possibly not conceive it because of a mental set, or otherwise not volunteer it.

Although we have no comprehensive data on these contrasts the following tables (5.2.2 and 5.2.3) should serve to illustrate the effects I have been describing.

(a) CAN ability

Type of response	No response	Other	≠ Semi-modal	≠ Modal	= Modal	Standard
			3b	c	d	4
P3°n = 9						9
P5°n = 10				1		9
P7°n = 13						13

(b) CAN command

	No response	Other	≠ Semi-modal	≠ Modal	= Modal	Standard
			3b	c	d	4
P3°n = 10	4		1			5
P5°n = 9		1		2	3	3
P7°n = 13				3	1	9

Table 5.2.2: Contrasts between two uses of CAN

The first instance (ability) appears to present no trouble, the Ss are regular and consistent in their response, but with the second use (command) the P3's are uncharacteristically floored for a response and even the older Ss are not consistently giving a formal or equivalent response. The increased variability would presumably indicate that the Ss were aware that the formal question equivalent altered the type of modality.

(a) MAY deontic								(b) MAY epistemic							
Type of response	No response	No inversion	Nonmodal auxiliary 3a	#Semi-modal 3b	#Modal 3c	=Modal 3d	Standard 4	No response	No inversion	Nonmodal auxiliary 3a	#Semi-modal 3b	#Modal 3c	=Modal 3d	Standard 4	
P1° -								P1°n= 10	5	1			2	2	
3°n= 9				1	2	2	4	3°n= 9	1	2			4	2	
5°n= 10	1				4		5	5°n= 10	1	1	1		7		
7°n= 13				2	2	1	8	7°n= 13		5			8		

Table 5.2.3: Contrasts between two uses of MAY

The deontic use (for MAY) appears to be easier than the epistemic use but the picture is complex. Unfortunately we have no parallel deontic CAN in our data by which to determine the degree of difficulty in handling the rarer more formal form. Surprisingly however, there were only 3 substitutions of can for may. Substitutions by will were more common (4 instances), but odd in that making an offer does not seem to parallel the giving of permission in any obvious way. With the epistemic form the formal equivalent is not really the most appropriate response and the two older age groups appear to realise this. Here the most appropriate substitution is will, but in addition to this the P7 Ss also substituted do. It may be that these Ss consider that the question is about present actuality rather than the future. Interestingly, this replacement by do does not occur with the item of epistemic MIGHT, but here the possibility unambiguously refers to the future (I might come back to play with you again). Apart from this difference, performances on epistemic may and might do not seem to differ in ease, although comparison is difficult because might is marginally easier

since might is a potential question marker (Might you come back...). Palmer (ibid) would predict could as a question marker for epistemic MIGHT, but we had no instances.

In tackling questions about different uses of forms, we have also consequently been dealing with the issue of whether the rarer forms are more difficult to deal with than more common forms. Our discussion of command CAN above is one example of relative rarity (which has no interrogative equivalent and therefore changes its use as well) with the ability meaning being extremely frequent observationally. Deontic MAY, while infrequent, is more frequently observed than epistemic MAY in our data. Another example which is a clear example of frequency-rarity, while both being regular in question formation is should vs ought to, and the relation of should to is to and be supposed to is also worth a passing mention. We would of course predict that should is a great deal easier than ought to and results shown in Table 5.2.4 bears out this prediction.

	<u>Should</u>					<u>Ought to</u>								
Type of response	No response	Other	3c ≠ Modal	Standard		No response	Other	No inversion	2a do	2c Related Modal	3a Nonmodal auxiliary	3c ≠ Modal	3d = Modal	4 Standard
P1°n= 10	2	1		7	P1°n= 10	4	2	1	1		2			
3°n= 9				9	3°n= 9	1			1	3		1	2	1
5°n= 10			1	9	5°n= 10	2				1	1		3	3
7°n= 13				13	7°n= 13					1			6	6

Table 5.2.4: Contrasts between responses to should and ought to

By inspection, we seem to have a clear contrast here between the best and worst performance: should appears to be the easiest and ought to the most difficult item. It is only the P7 Ss who seem to have mastery over ought to, while it could almost be posited that even P1 Ss have control of should. The difficulty with ought to is probably related to its absence in our naturalistic data, while should is quite well represented. The other obligative uses: the is to and be supposed to seem to be of roughly comparable difficulty, with is to more difficult, although not so consistently as ought, for P3 and P5 Ss.

Constructing questions with semi-modals ought to be more easy than with modal auxiliaries, since they form questions with do or have. Major posits replacement by do and have as a relatively earlier stage (when the appropriate modal auxiliary is not fronted). In Table 5.2.5 we can see cumulative data for the items need to, have got to and be going to. Performance on these items shows a very similar pattern to the regularly-formed items summarised in Table 5.2.1. The semi-modals seemed to be easier, especially for the P1 Ss but also for the P2 Ss. There is the same peaking of standard responses with the P3 Ss who also appeared to vary their responses even less than on the regularly formed items. Once again the P5 and P7 Ss showed what might be considered as

Type of response %	No response	Other	No inversion	Nonmodal auxiliary	#Semi-modal	#Modal	=Modal	Standard
			1	3a	b	c	d	4
P1'n = 30	33.3			3.3	3.3		13.3	46.6
2'n = 30	6.6	3.3	3.3			20.0	6.6	60.0
3°n = 27							18.5	81.5
5°n = 30	3.3					6.6	10.0	76.6
7°n = 39			5.12		5.12	2.6	10.3	71.8

Table 5.2.5: Formation of questions with need to, have got to, be going to

a deterioration in response, but what I would prefer to call a flexible response; trying to make sense of an ostensibly formal task. With respect to details of these tasks, there were no questions formed. Need she visit..., although there were two *need she to visit... (the standard response was does she need?). For have got to, the responses seem about split between do I have to and have I gotta, with one have I to...? (Other data we have suggests that I have to invariably goes to do I have to?)

We refer briefly to the balance of the items before passing on to consider the negation task. On the undertaking/future shall item, about one-third of the children (P3-7) substituted will in forming the question. This may indicate a degree of discomfort in forming an offer with shall, will being more common in Scottish English, though our case study

children were adept with both. About one-sixth of the children substituted can when forming a question with be able to (P3-7) but overall performed excellently on this item. Comparing would rather and had better, the former seemed somewhat easier, perhaps because the correct response involved the fronting of a regular modal; while for the latter, the P5 and P7 Ss recognised it has an easier paraphrase of should (with eight occurrences). This result reinforces my view that the older children were able to manipulate the semantic as well as the syntactic constraints of the task. On the item with dare to, P3 Ss trotted out the formal equivalent does John dare to come, while the older children are more free with the time expression, with shall, will and did occurring.

A brief comparison with Major's (p.100-1) conclusions shows some similarities and some differences. In her study, for all common modals and catenatives (i.e. should, would, could, can, will, have to, be going to) no age differences were apparent, but with unusual questions, the children differed considerably, roughly by age. My subjects showed developmental differences across all items, somewhat poorer therefore on the regular modals (across comparable age groups P1-3). One can only assume that Major's method enhanced her Ss' performance (anyway it must have been more fun talking to a green frog!). She refers to 'stages' - which I described in my category system - saying that she would not claim that the children repeat these stages for each modal separately. The stages are posited from a combination of observational insights and performance on this task. I would draw short of using the term "stages" (with all its ramifications) but would agree with Major that "one could say that the spontaneous strategies of young children first learning to ask questions remain available for older children asked to perform unfamiliar language tasks" (p.101). The developmental progression is reasonably clear in both spontaneous data and task performance.

5.2.3 (b) Negation Task Results

For the responses on this task, a simpler coding system seemed to be appropriate

- 1 No response
- 2. Other
- 3a Non-equivalent semi-modal
- 3b Non-equivalent modal
- 3c Equivalent modal or semi-modal
- 4a Uncontracted formal identity
- 4b Contracted formal identity

I discriminated between (3a) and (3b) since it would seem to be easier to resort to a semi-modal where the negative element may contract with the primary nonmodal auxiliary (e.g. don't need to, don't have to). However, for (3c) the response is seen as equally adequate whether auxiliary modal or semi-modal, as long as it is equivalent. Categories (4a) and (4b) are of course equally correct, but reported as distinct.

We address parallel questions to those in the Question Task except more briefly, as this task does not have as much inherent interest, although there are a number of interesting observations to be made.

First we would ask whether there is a developmental effect in the way in which children construct negations? We may ask this of a subset of items - the regular modals will, would, could and must, shown at Table 5.2.6.

Type of response	1	No response %	2	Other %	3a	Semi-modal %	3b	Aux. modal %	3c	Semi-modal %	4a	Formal uncontracted %	4b	Formal contracted %
P1'n = 40		22.5		10.0		2.5		7.5		12.5			45	
2'n = 40		5.0		2.5		2.5		2.5		22.5		32.5	32.5	
3°n = 40		5.0		2.5				2.5		17.5		20.5	47.5	
5°n = 40				2.5						15.		45	37.5	
7°n = 52										17.3		30.7	51.9	

Table 5.2.6: Patterns of negation with four regular modals

This pattern seems to be an accurate reflection of what is happening with all the regular modals. To make a brief cross-reference to the Question Task, the corresponding Table 5.2.1 shows that this negation

task is easier for the very youngest subjects, because of the lower proportion of 'no responses', but the absolutely correct responses were not proportionately higher. Looking specifically at this task there does seem to be a developmental effect insofar as the older Ss (P5 & 7) with an isolated exception have all essentially correct constructions (3c, 4a & 4b). Taking only the formally identical replies, the proportions increase as follows: P1 - 45%; P2 - 65%; P3 - 68%; P5 - 82.5% and P7 - 82.6%. The greatest difference occurs between P1 - P2 and P3 - P5, but in point of fact, when we add in category 3c as well, all but P1 at 57.5% have a firm grasp of the constraints (85.5-100%). We would mention that would and could are reasonably often replaced by won't and can't in the replies. We return to the question of patterns of substitution below. In comparison with the Question Task there is a relatively higher proportion of replacement by equivalent semi-/modals. The reason for this is not clear, but perhaps it is the case that the identity of the form is monitored more closely when it is shifted to sentence-initial position as opposed to a simple addition of the negation element.

A second question relates to whether the relative rareness or familiarity of a form affects performance; although the parameter modal/semi-modal covaries with this first factor;⁷ should and ought to appear to epitomise this contrast. In Table 5.2.7 we can see that there is a greater spread of responses for ought to, as if the Ss were not quite sure what to do with the semi-modal.

		Should								Ought to					
		No response	Other	≠ Modal	Modal/ = Semi	Uncontracted identity	Formal identity			No response	Other	≠ Modal	Modal/ = Semi	Uncontracted identity	Formal identity
N=		1	2	3b	3c	4a	4b	N=		1	2	3b	3c	4a	4b
P1°	10	1	1		1	1	6	P1°	10	4	2	1	3		
3°	10					5	5	3°	9			2	3	2	
5°	9			1		1	7	5°	10	1			2	5	2
7°	13					5	8	7°	13				2	9	2

Table 5.2.7: Contrasts between negations formed with should and ought to

There seems to be evidence of mastery of should on this task at P1 (7/10 appropriate responses) whereas with ought to this appears to be

only at P5, where furthermore the contracted form is much rarer, and there is some replacement by should. However, negating seems to be easier than question formation with ought to.

A third question we addressed involved differences observed with distinct uses of a form. For the Question Task we looked at CAN ability vs command and MAY permission vs epistemic possibility. Results with negation can be seen at Tables 5.2.8 and 5.2.9. With the two uses of CAN, we do find a slightly different pattern of response. The CAN of ability presents the neatest pattern of response, with all the subjects getting the item formally correct. The second use produces a slightly broader pattern, but only the P3 Ss didn't produce a set of appropriate responses. Also, the 'command' use was less likely to be contracted, where in contrast the can't of prohibition is perfectly possible with the observational data.

	no response 1	≠ modal 3b	= modal 3c	uncontracted 4a	formal contracted 4b
P3 n = 10				2	8
5 n = 10				5	5
7 n = 13				2	11

(a) CAN ability

	no response 1	≠ modal 3b	= modal 3c	uncontracted 4a	formal contracted 4b
P3 n = 10	1	1	1	1	5
5 n = 10			1	7	2
7 n = 13			1	8	4

(b) CAN command

Table 5.2.8: Negations with two uses of CAN

With the uses of MAY, there are slightly different patterns of responses, with the epistemic use producing more non-appropriate responses with P3 and P5 Ss. Difficulties with MAY are predictable from the literature and our own data, as well as the uniform absence of contractions, for both forms. The P1 Ss with epistemic MAY produced 6 instances of won't and 3 of don't, the pattern with won't being produced with epistemic MIGHT as well (7/10). This pattern also occurs to a lesser extent with the P3 and P5 Ss forming some parallel to question formation here with will. There must be some pragmatic relationship between might and won't which obviates the need for might not. In a sense might not may not seem a strong enough negation of might since it is presupposed

by it (e.g. If it is true that she might come it is also true that she might not come), hence the younger children would fall back to won't, which they would perhaps read as not possible.

	#modal	=modal	uncontracted formal		no response	other	#modal	=modal	uncontracted formal
P3 n = 9	3	2	4	P1 n = 10	1	3	6		
5 n = 10		1	9	3 n = 9		4	3		2
7 n = 13		1	12	5 n = 10			2	1	7
				7 n = 13					13

(a) MAY permission

(b) MAY command

Table 5.2.9: Negations with two uses of MAY

In the language of logical squares the use of won't involves the contrary of might and not the contradictory. There is nothing in the instructions which could delimit the response, but considering the patterning effect of taking modal + not, it's surprising that we should have got this response. By this I mean that we could have expected a formal response set, any other type of response being due to further analysis of the meaning.

A fourth question we would ask is whether there is any difference in difficulty between negating the semi-modals and negating the modal auxiliaries. We would predict that performance on the semi-modals would be better since negating the semi-modals need only involve negating a (potentially dummy) primary auxiliary, a developmentally earlier process.

	%	1 No response	2 Other	3a #Semi-modal	3b #Modal	3c =Modal/ Semi-modal	4a Uncontracted formal	4b Contracted formal
P1' n = 30		16.6	3.3	10	3.3	20	3.3	43.3
2' n = 30				13.3	3.3	13.3	23.3	46.6
3° n = 27				3.7	3.7		48.2	44.4
5° n = 30					3.3		63.3	33.3
7° n = 39				2.6	2.6		20.5	74.4

Table 5.2.10: Negation with semi-modals need to, have got to, be going to

If we take the proportion of total formally correct responses we find the following pattern: P1 - 46.6%; P2 - 70%; P3 - 92.6%; P5 - 96.6%; P7 - 95%. The task obviously becomes progressively easier with age, but when comparison is made with Table 5.2.6 we find that the same proportion of P1's seems to be succeeding on the task (4a + 4b: 45% vs 46.6%). Similarly for P2; the biggest difference occurs with P3, who except for 2 non-equivalent responses, perform perfectly. For the three higher age groups the number of formally appropriate responses increases with a corresponding absence of appropriate substitutions (3c). It is this latter absence of substitutions which differentiates performance on the two types of items. This would seem to indicate that the semi-modals are easier to manipulate than regular modal auxiliaries, from P3 upwards.

We would also want to know which modals are more frequently contracted when negations are formed. In order of frequency we have ability CAN, obligational SHOULD and circumstantial HAVE (GOT) TO (either don't have to or haven't got to). As we have mentioned MAY has no contractions, nor does MIGHT or HAD BETTER. There is no literature on contractions, but intuitively we would have predicted this picture. I was somewhat surprised by the relatively low overall rate of contraction: when I questioned a few of the P5 children about this, they said that they'd been taught never to write a contraction as it was bad style, and had presumed that I wanted more formal answers from them on this task. This was despite the fact that the examples given were contractions.

Some observations about patterns of substitution are in order before we pass on to a discussion of the tense sequence data. Won't is substituted for shall but not a very high proportion, but we also have two instances of shouldn't. It's not clear whether these are genuine errors or the children do think there is a relationship between shall not and shouldn't. Won't is also used for the item with would, also for be going to; can't is used for could, also for may. However can't is not substituted for be able to. Apart from the last observation, we might want to say that the developmentally early items can't and won't would be used for semantically similar items. The relative uniformity of responses with be able to may be accounted for by the ease of formation of semi-modals. Otherwise, for are to we occasionally get don't have to or shouldn't and the negative of be supposed to is also rendered don't have to. Would rather and had better seem to present particular

difficulty with P1 and P3 Ss because they generated a high proportion of non-equivalent substitutions, where the older children were able to handle the formal equivalents.

Finally, we would mention that we had no instances of modal daren't and only two instances of needn't (P5 and P7 Ss). The affirmative is in the semi-modal form and the subjects were not explicitly primed to produce the modal negation, but in any event the forms are absent from our observational data. Major (p. 42) decided to cue the children with 'abnormal' affirmatives to direct them to providing the modal uses in the negatives and questions but I did not feel I could justify this as a valid way of eliciting a non-catenative response.

Once again we have some parallels and some contrasts with Major's conclusions. She reports (p. 100) that the kindergartners attended to the task of negation without consistent reference to the modal given (preferring regularly contracting modals like can't, don't, won't, etc); the first graders seemed to focus on the formal requirements of the task (inserting stressed negatives after the modal consistently); and the older children generally accommodated the formal feature of contraction to the essential meaning of the sentence (substituting equivalent contracted forms). Our P1 children tended to supply non-equivalent form for the non-regular forms, but they struggled with the task overall (with about 20% 'no responses'), something which Major does not report. We found that the tendency to contract did not increase with age, because of teacher influence, until P7 when these constraints seemed less important. Patterns of contractions were more closely correlated with item-type (more with regular modals and semi-modals or catenatives). Replacement by equivalent modals held constant between P3-P7, consistently low, but Major does not give details for comparison. We do have a picture of competence being achieved between P3 and P5.

5.2.3 (c) Tense sequence task results

The results for this task are neither as clear nor as complete as from the previous two tasks. The developmental picture is not so clear, and we do not have as much data because we changed the method from the 1980 to the 1981 session. The complete set of items were only administered with the P5 and P7 subjects. In general the change in method did have an effect on the results. The earlier group, given

instructions about changing to past time, with examples, were much more likely to produce forms with have, including could + have, should + have, would + have. This effect did not operate with might and must or will. Not only were the 1981 group less likely to produce forms + have, there was also much less variability in the responses, suggesting that the revised tense-sequence task was easier: overall this group seemed to find no difficulty with the format of the task, which I had changed to since the earlier method seemed to involve much conscious decision-making (and frowning!).

A note on the category system is in order. We have no previously developed system to rely on so we had to decide on their relative ordering. Because of the absence of a strong developmental effect and because of the differing nature of appropriate responses, the left-to-right ordering of categories on the frequency tables is not especially significant. They are as follows:

1. No response
2. Other: this included substitute modals of varying degrees of equivalence, amongst others.
3. Simple past: this category is not appropriate for items like can - did, but appropriate for catenatives like am going to - was going to.
4. No change: appropriate for items like would but not will.
5. Etymological/Suppletive/Substitute: this category varies for specific items, e.g. will - would; must - had to; be supposed to - should. It is conflated since they are considered to have the same degree of adequacy as responses.
6. Perfect, + have: for example would - would have. This is not necessarily the most appropriate (for example 4 it may be) and is not very much used.

For each item it should become clear what the pattern of progressively adequate responses should be. Real examples for P3 responses on She needs to visit her grandpa include-

2. Other: would
3. Simple past: needed to (most appropriate response)
4. No change: needs
5. Substitute: had to

We address broadly the same questions as we did in the first two

tasks, although in some cases our answers are not so complete. The first and most obvious question relates to whether there is a developmental effect in the way in which children construct tense sequences. We can look at this partly in terms of the regular modals (returning to the question again specifically in a comparison with the semi-modals). In Table 5.2.11 we see that there seems to be a developmental

	1 no response	2 other	3 simple past	4 no change	5 ety. related	6 have
	1 no %	2 o %	3 %	4 no %	5 e %	6 + %
P1 n = 40	15	10		50	25	
2 n = 40		5	2.5	57.5	22.5	12.5
3 n = 40		7.5		67.5	25	
5 n = 40		2.5	2.5	77.5	17.5	
7 n = 40	2.5	5		67.5	25	

Table 5.2.11: Sequence of tenses with will, would, could and must

change only between P1 and P2. The P1 Ss seemed to have slight difficulty, categories 1 and 2 totalling 25% of the response. The P2 Ss seemed to find the task easier, with an idiosyncratic response worth noting. There were 5 responses of must have, changing the meaning from circumstantial dynamic to epistemic, something which the older children avoided. The three oldest age groups showed an essentially similar response pattern. This table subsumes two different item types, so some particular remarks are required: the (appropriate) tense sequence alternations were will - would; would - would; could - could, with least variability; must - must/have to/must have but surprisingly not the past tense suppletive had to, also being the item with the most variability.

A second question relates to the effect of familiarity or frequency of occurrence of a particular form. One pair we could look at is should /ought to. We have P5 and P7 data on this: with should there were two responses with have⁸ for each group, but with ought the P5's uniformly responded with no change in form, but the P7's used ought to have and should. Another reasonably unfamiliar form be to showed some developmental effect with only the P5 and P7 Ss showing any mastery of were to. This past form did not occur in our observational data.

We would also want to know whether there is any difference between the different usages of a form. Once again we have only P5 and P7 data, which shows exactly the same pattern of response for the CAN of ability and command: can - could. Since the latter is strictly deontic it must necessarily change its type, and becomes past circumstantial possibility: I knew you could leave me out of this game.

We might predict that forming tense sequences with semi-modals should be easier than with even the regular modals since it involves simply the past tense formation of primary auxiliaries BE and DO (category 3).

	1 No response	2 Other	3 Simple past	4 No change	5 Substitute
	1 %	2 %	3 %	4 %	5 %
P1 n = 28	10.7	7.1	35.7	35.7	10.7
2 n = 30		13.3	76.6	6.6	3.3
3 n = 28	7.1	10.7	46.4	32.1	3.6
5 n = 30			76.6	13.3	10.0
7 n = 30		6.7	66.7	3.3	23.3

Table 5.2.12: Sequence of tenses with need to, have to and be going to

However, the results shown in Table 5.2.12 of tense sequences formed with need to, have to and be going to in comparison with the results shown in Table 5.2.10 indicate much the same developmental picture. The developmental change seems to occur between P1 and P2, where the most appropriate response is 3. simple past. The P3 Ss shows a deterioration in performance, but by P5 performance is good again. The P7 Ss feel most free to substitute (needed to ~ had to; have to ~ was to, with a possible order effect from be to). The greatest variability was with need to, even with the older Ss, the least with be going to (but not as little as with could (ability), the lowest of all the items).

If we take a calculation of appropriate responses across the regular modals and semi-modals we find a relatively smooth progression. Leaving aside P3 for the moment, we find in Table 5.2.13 that regular modals are distinctly more difficult in P1 but performance on both increases smoothly and is extremely good by P7. For P3, the performance

fits the pattern for regular modals, but they unaccountably perform very poorly on semi-modals. The same pattern is revealed on another semi-modal be supposed to.

	<u>Regular</u>	<u>Semi-modal</u>
P1	67.5%	35.7%
2	77.5%	76.6%
3	80.0%	46.4%
5	87.5%	86.6%
7	90.0%	90.0%

Table 5.2.13: Appropriate responses for regular modals, and semi-modals

Other observations include the fact that discourse-oriented modals by their nature do not fit well into this task. However in their attempt to make sense of the shall (undertaking) item the P5 and P7 Ss (the only data we have here) produced 75% should, showing they have some cognisance of the etymological relation which was supposed to have held. For epistemic might the Ss (P5 and P7 again) generally opted for 'no change'. One might surmise that they were aware that it is possible to have past knowledge about future (ongoing) possibility or else one could simply view this as a further instance of the general trend of not adding the perfect form to the 'tentative' modals. However, the P7 Ss were slightly more likely than the P5 Ss to use the perfect form overall (11 versus 6 instances). Similarly their responses on would rather and had better reflect no change, but these forms already contain a tentative/past component.

Since Major does not report the results for her tense sequence task, we can make no comparison. We turn therefore to a statement of general conclusions about the three tasks.

5.2.4 General conclusions

While direct comparisons are not always possible nor appropriate I would like to draw together some of the results of the three tasks.

It seems that the tense sequence task was the easiest and the negation and question tasks more and most difficult respectively. The summary table below shows the two cumulative frequencies of correct responses for each task.

Task	Question	Negation	Tense sequencing
P1	30 - 46%	45 - 46%	45 - 75%
P2	52 - 60%	65 - 70%	79 - 80%
P3	81 - 83%	67 - 92%	49 - 92%
P5	65 - 76%	82 - 96%	86 - 94%
P7	67 - 71%	82 - 94%	90 - 92%

Table 5.2.14: Summary of range of correct responses across three tasks

In contrast, Major suggests that questions were easier than negations in her study. We have seen that our children did somewhat less well on questions than Major's and also that the developmental pattern with the negations was different (although not critically so) for the two studies.

The relative difficulty of the three tasks is probably reflected in the coding system for the responses. For the tense sequence task there was no uniform progression of categories, with the broader focus on types of appropriate categories. At the other extreme the coding scheme for the question task includes possible redundancies and substitutions (enlarged from the literature). The negation task produced no redundancies, but the pattern of substitution categories was developed by analogy with the question task. We would agree with Major (p.100) that the question task was the most informative in terms of developmental sequence. However, the complexity of response pattern is determined not solely by difficulty but by inherent features of the tasks: specifically we mean that the negation task was unlikely to produce redundancies because the primary focus was on the negative element rather than the fronting of the auxiliary (or the non-fronting resulting in duplication of some kind).

To look at the questions we addressed with the results of all three tasks in mind, we may first ask whether there was a developmental effect with the regular modals. On the question task, not all the P1's grasped the requirements, but where they did, they tended not to produce lower-order redundancies. About half of the P2's produced correct responses; absolutely correct responses reached a peak at P3, with the older children more likely to produce adequate substitutions. On the negation task the P1's grasped the task more easily, so there wasn't such a pronounced increase in proportion of correct responses with age,

with overall P1 and P2 showing a higher proportion of correct responses than on questions. There was no peaking effect with P3. On the tense sequence the P1's grasped the task well, with P1 and P2 showing the best performance of the three tasks; there was a systematic developmental progression with no peaking, but performance was already excellent at P3. For this question we have a task effect as well as a developmental effect, also with the subsequent questions.

We also compared performance on regular modals and on the semi-modals. On the question task, the semi-modals were easier for P1 and P2 with the same peaking effect at P3 for formally correct responses. The two types of expression were equally easy for P1 and P2 on negation, but the semi-modals were easier from P3 upwards. In contrast the semi-modals were more difficult for P1 on tense-sequencing, but performance essentially the same at higher age levels. The reason for this progressive picture of relative difficulty with the semi-modals is not clear (though it may not be statistically significant, although it would not be easy to test this).

When we looked at the effect of familiarity of a form (its relative frequency of occurrence) we found that should was a good deal easier than ought to on the question task; in the negation task there once again was greater variability of response with ought to, although easier than with questions. Less complete data showed an equivalence of the two forms with tense sequencing.

Another question we examined was whether different uses of a form altered children's treatment of the item. Different responses to distinct uses would indicate the Ss were monitoring the different meaning and not treating the task purely formally (although there is also some covariation with the frequency of occurrence of the different uses). On the question task the can 'command' produced more variability of response than the 'ability' meaning, and the deontic may use appeared to be easier than epistemic may to manipulate. The same pattern appeared on the negation task, while less complete data on the tense sequencing showed an equivalence for the two senses of can. For this question and the previous one we did not have P1 - 3 data which meant we could not ask the question properly developmentally, although we could say for all three tasks the effect of familiarity and different uses is neutralised by P5.

We have stated that there is an ordering of relative task difficulty. We have seen there is also a developmental effect within each task. Item effects included the relative frequency of occurrence of a form and different uses of the same form, which interacted with age effects. The relative difficulty of regular modals versus semi-modals interacted with both the age and the task. Unfortunately the data were not amenable to a multivariate statistical procedure, but we have attempted to spell out the effects descriptively.

It is difficult to make a definitive statement about the developmental picture because of all the other factors, but perhaps some general remarks could be made. The P1 Ss did not always grasp the constraints of the task, but where they did, some attempts at appropriate responses were made. Somehow P2 Ss seemed clear about what was required, and sometimes they performed much better than the youngest Ss. By the time we get to P3, the Ss seemed to understand the demands of the task perfectly, sometimes showing tight grasp of the formal constraints almost to the detriment of other factors. The two oldest groups could almost be considered together since it is doubtful whether any differences would be significant. They seemed to have a strong grasp on the formal as well as the semantic constraints of the task. Patterns of substitution showed that their modal auxiliary system is in some sense well-integrated. We will want to see whether something of the same developmental progression emerges with the other studies.

5.3 Study Two: Acceptability

5.3.1 Introduction

In our first study we required the child to show a specific linguistic ability, for example, the ability to construct sentences related to a given affirmative declarative sentence. We cannot, however, determine whether the child had previously noted the systematic relationship which exists, for example, between a declarative and interrogative sentence. In their responses to this task, children occasionally produced what we called a redundancy-response, with two auxiliaries, a supposedly developmentally immature form. One of the goals of the present study was to determine whether children can

detect and rectify such "immature" or deviant sentences. What we aim to explore here is an aspect of children's notion of the acceptable or grammatical use of modal auxiliaries.

Notions of acceptability and grammaticality are intimately bound up with grammar writing of the transformational-generative type. On this account one of the tasks of the linguist is to give an account of native speaker judgements of synonymy, ambiguity and paraphrase relationships which hold between sentences: aspects of deep structure relations were meant to explicate these notions, for example, an ambiguous sentence had two deep structure configurations associated with it. Native speakers are also supposed to recognise which are grammatical and which are ungrammatical sentences of English, for example Morag and Roger are friends versus *Morag and Roger is friends. The deviancy which we have just illustrated is syntactic; but there are also semantic rules which yield deviances when broken, for example, Cats play happily versus *Stones play happily. Restrictions on collocability are called selectional restriction rules⁹ which would say for the above example that the animate predicate play happily would require an animate subject.

During the period of time when developmental psycholinguists were relatively more dependent on linguistics for delineating the scope and focus of their concerns, there was some consternation at the discovery that one could not elicit these crucial intuitive judgements from very young children (Brown and Bellugi, 1964). Even relatively recently it has been said that metalinguistic judgements provide the only real basis for building an adequate explanation of language development (Gleitman *et al*, 1972; Scholl and Ryan, 1976). However methodological refinements have enabled researchers to get judgements from children as young as 23 months (e.g. Carr, 1979).

In broad terms, the literature can be seen as focussing either on semantic or syntactic judgements, but rarely on both. Syntactic questions include whether children can unscramble random word order within a sentence (Bohannon, 1976), judge relative complexity of sentence structures (Scholl and Ryan, *ibid*) and more specific issues like detecting deviances in subject-verb agreement, scope of quantifiers, etc. (Gleitman *et al*, *ibid*). Semantic studies have principally involved studying children's responses to violations of selectional restrictions. Over time, the control of design variables has become

more precise, like children's knowledge of the contents of sentences, the length of sentences (e.g. Howe and Hillman, 1973) and there is uniform concern to ask questions in a form children understand. The usual practice is to use the forms which children spontaneously produce to describe practice examples, like 'silly', 'funny', 'odd'. One problem with this is that these terms are ambiguous between referring to the content and referring to the form, so sometimes the children have been asked to attribute sentences to odd and normal looking people instead (James and Miller, 1973) or to an adult or child (Scholl and Ryan, *ibid*). While it had previously been assumed that children were using their semantic knowledge to make judgements, Carr (*ibid*) has interpreted her results as suggesting that children may be using pragmatic strategies as the basis for their judgements, at least at the very early stages (up to four years). No-one has yet suggested how one would distinguish between semantic and pragmatic factors operative in making judgements, and the problem is paralleled in the linguistic literature, where the concern is to be able to build a semantic theory which would not have to simultaneously account for the speaker-hearer's knowledge of the world.

This issue (interesting though it is) is not centrally related to the purposes of our study. More central to our syntactico-semantic concerns is the work of Gleitman *et al* (*ibid*) who seem to be the only researchers to have asked, albeit informally, for judgements of syntactic acceptability, from seven children from five to eight years. In an informal interview situation they explored the deviancy of sentences such as the following:

*Claire and Eleanor is a sister.

*Know the answer!

*I saw Mrs Jones and you saw one.

*I am knowing the answer.

By the age of 7-8 years, the children showed consistent agreement with the judgements of adult subjects. The younger children very often rejected syntactically deviant but meaningful expressions, but gave semantic reasons for their rejections, saying the sentence didn't make sense. Gleitman *et al* point out that this type of confusion was not restricted to children, as adults would do the same given more difficult sentences. By and large the five year olds offered only paraphrastic corrections. In contrast the older *Ss* did refer to linguistic categories (e.g. 'You can't say it with a name').

The present study is an attempt to explore children's understanding of the syntactic constraints governing the modal auxiliary and quasi-modal (catenative) system. In broad terms we wanted to see whether they could isolate the locus of the unacceptability and offer some remediation. Because the deviance was all of one type and because we wanted to make the task sufficiently easy for even the youngest subjects to experience some measure of success, we decided to ask for a judgement and correction only, with no explanation required¹⁰.

5.3.2 Design

5.3.2 (a) Subjects

There were 49 subjects, 10 in each of P1, 2, 3 and 5 and 9 in P7. The children were from a fee-paying school, roughly equally represented for sex, and randomly selected for the three older age groups, while the younger children were part of another project (mentioned in the previous study) and therefore not randomly selected. The P1 children were the oldest in the year, and P2 children a mixture of oldest and youngest¹¹. The average age for each year was P1 - 5,7 years; P2 - 6,2 years; P3 - 7,7 years; P5 - 9,4 years and P7 - 11,6 years.

5.3.2 (b) Selection and construction of items

The general principle underlying the unacceptability of the sentences constructed is the syntactic rule that modal auxiliaries do not co-occur (Palmer, *ibid*, p. 9), e.g. no *He may will come; *He must might come. There are exceptions in non-standard dialects, for example might could is allowable in some varieties of Scottish English, something which we look at briefly. However, it is possible for modals and catenatives (semi-modals) to co-occur, for example We will have to be leaving soon or We could be going to read today. Although there does not appear to be any literature on the point, a little thought will reveal that in fact there are restrictions on the collocation of modal auxiliaries and semi-modals too. The two examples given show the co-occurrence of non-redundant, non-contradictory senses, viz future obligation, possible future. One can easily construct unacceptable examples where there is a repetition or contradiction in sense: e.g. *We need to have to be leaving soon or *We have to might read¹².

Conceptually, different types of modal meaning may combine: for example epistemic and dynamic meanings, but the syntactic constraints determine that semi-modals constitute part of the construction (e.g. *might must vs might have to). However, it does not make conceptual sense to have a duplication of the same sense, and it is with this in mind that I decided to construct the items for this study. Most of the redundancies were attested in Major's (ibid, cf 5.2) study, with a couple specifically constructed. The sentences they were put into were deemed to be interesting to the children, and are as follows:

1. Need I have to get a new blouse?
2. Shall that child will stamp in puddles?
3. I'm supposed to have to go to the nursery tomorrow.
4. Does she must have to buy a new black dress?
5. I might can ride a bicycle.
6. Should I have to write a letter?
7. Need I have to leave a message?
8. Has she must buy a new dress?
9. I'll need to have to go to the nursery tomorrow.
10. Should she must buy a new dress?
11. Must I hafta write a letter?
12. Do I must gotta leave a message?

It will be noted that there are nine questions and three statements in the list. Item 5 was included to see whether the children would accept what occurs in some varieties of Scottish English. Items 1 and 7 are essentially the same and function as a consistency check. Items 4 and 12, although questions, because of do functioning as a question marker have two modals occurring in sequence, and are thus very similar to the statements - items 3 and 9. The average length of the items was 7,8 words long.

5.3.2 (c) Procedure

The Ss were told that E was going to say a number of things to them. Some of the things which she said would be "okay" but some of the things which she said would "not be alright", "they might be a bit odd", "there might be something wrong with them", "they might be a bit muddly".

To ensure that the Ss were not operating with some notion of

pragmatic implausibility¹³, before each test sentence we gave a model sentence which the child was asked to judge: these model sentences were closely parallel to the test sentence, but entirely acceptable. The subject was given feedback on the model sentence before we proceeded to the test sentence. The similarity in meaning but slight difference in form between the two sentences was intended to convey to the Ss that they should be attending to the form alone.

The Ss were asked first to judge whether the test sentence was "okay" or "not okay", and then invited to make the sentence "better". Corrections were invited irrespective of the original judgement since children might tolerate a slightly aberrant structure, but also prefer to improve it, given the chance. The Ss were given each sentence twice in the first instance, and then allowed to hear it as often as they liked. Each testing session lasted 10 - 15 minutes.

5.3.3 Results and discussion

We will present the cumulative results first and then go on to detail responses on specific items.

The results for the initial types of judgements are shown in Figure 5.3.1 (see overleaf).

We would offer the following interpretation of the results. The 'don't know' category is either an index of the comprehensibility of the task, or else that the unacceptability of some items is too subtle to detect. However, taken with the larger picture of the results, it would seem that even the youngest Ss were able to make some kind of response and certainly the older Ss adequately detected the loci of unacceptability. Frequencies in this category started at the relatively low level of 12.5% for P1 and fell to zero at P5 and P7.

The next category - 'acceptable' shows a relatively high level at P1 and P2 (with 37.5 and 40% respectively) before it falls away to a rather lower level at P3 and P5 (less than 20%). But significantly, at P7, 11% of the responses were still "acceptable". It is not clear whether the basis for these results is that the degree of latitude for sentences being judged as acceptable is still relatively broad, or whether this is partly a task effect because after the model sentences there were no distractors, i.e. other acceptable, related sentences.

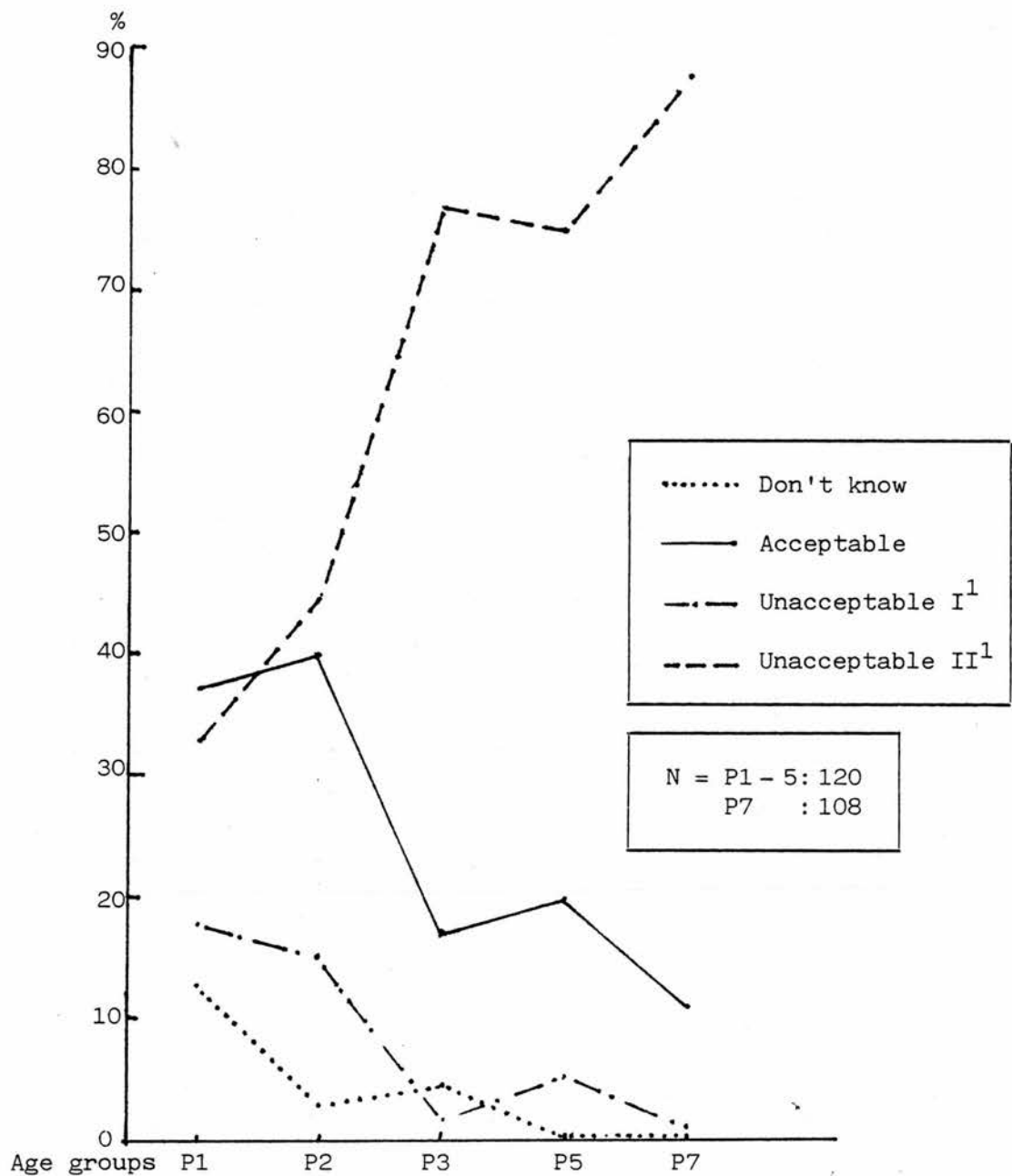


Figure 5.3.1: Types of judgement on acceptability task

1: I indicates no subsequent correction attempted.

II indicates subsequent correction attempted.

We will see below that the notion of 'acceptable' is attached to specific items, so possibly the former interpretation is correct. (The original intention behind the slightly odd design was to keep the task as short as possible for the youngest Ss who already had to listen to 12 model sentences repeated and then the test items said twice too.)

The 'unacceptable' judgements were separately coded into two categories, those without and those with subsequent corrections. Without any attempt at correction, one could not be sure of the basis for these judgements. Judgements without corrections - that is 'Unacceptable I', fell from 17.5% at P1 and 14.8% at P2 down to less than 1% at P7. The reverse picture, of judgements of 'acceptable' plus subsequent corrections, is worth mentioning P2: 3 instances; P3: 3; P7: 1, showing that the P2's and P3's seemed to have some 'tolerance' for unacceptability, but still realised some remediation was required.

The P1 Ss had as their highest single category 'acceptable'; however the total percentage of 'unacceptable' responses is somewhat higher - 56.5% vs 37.5%. A very similar picture is presented by the P2 Ss: 60% unacceptable versus 40% acceptable. However, these results are not to be taken as absolute indicators of degrees of competence on the task - types of correction are more illuminating (as we shall see below). It is of interest, though, to note the dramatic developmental effect with the 'Unacceptable II' answers (that is, including correction attempts). The P1 and P2 Ss have 32.5% and 45% respectively and then the proportion increases dramatically with P3 to 76.7%, levelling out to 75% with P5 and reaching a high point of 87.9% with P7. From P3 upwards the responses dichotomise to being either 'acceptable' versus 'unacceptable' followed by correction.

While one could not ask about the bases for 'acceptable' judgements, one wonders why there was a relatively high level of these responses with the two youngest groups. Did they genuinely find the test sentences acceptable or were they perhaps reluctant to attribute the production of anomalous sentences to the researcher, even though they were warned that she was going to produce some? Perhaps only some refinements of method could answer this question.

The second part of the task was to attempt corrections of the items. Although there was no explicit instruction to this effect, it

was expected that the Ss would try to preserve the form of the test item: that is, that question and statement form would be conserved. However, the particular type of redundancy with the questions allowed two types of response. The first way to make any grammatical utterance would be to delete the initial modal, leaving an acceptable statement. The second way would be to withdraw the auxiliary still placed inappropriately within the rest of the verbphrase leaving a well-formed question. So, for example we could get from

Need I have to get a new blouse? either
I have to get a new blouse, or
Need I get a new blouse?

In table 5.3.1 we see the pattern of form of corrections on the nine question items. Looking at the first column we see that the youngest subjects make an attempt at correction about one-quarter of the time and

N =		1	2	3
		% of items corrected	To statement (%)	To question (%)
P1	90	27.7	17 (68)	8 (32)
2	90	54.4	23 (47)	26 (53.1)
3	90	83.3	55 (73.3)	20 (26.6)
5	90	77.7	23 (32.9)	47 (67.1)
7	81	90.1	3 (4.1)	70 (95.9)

Table 5.3.1: Forms of correction on nine question items

P2's a little more than a half. The biggest jump comes between P2 and P3 (to 83.3%), after a slight dip to 77.7% the P7's correct 90.1% of the items. However, it is very interesting to note, that while the P3 Ss make an attempt at correcting so many of the items, their proportion of more adequate attempts is not much different from P1. We say this from looking at columns 2 and 3, where we would expect that the Ss over time would be able to control the form of corrections more appropriately. What we are looking for is a decreasing proportion of statements and corresponding increase with questions. The P3 subjects have the greatest absolute number of statements, and the real number only falls away sharply at P7, but the relative proportion of statements (excepting P3) falls away consistently with age. There is a corresponding increase in absolute number of question forms as well as increase in relative proportion from 32% at P1 to 95.9% at P7. We must conclude

then that maintaining the question form is therefore more difficult since it is achieved developmentally later.

So far we have only looked at the form of the corrections on question items. However, if we look at the pattern of the particular modal auxiliaries used in correcting all the items, we come up with a complex but interesting picture. In Table 5.3.2 these results are

N =	1 Total number of corrections		2 Multiple		3 Single Unrelated		4 Related		5 Retain 1st modal		6 Retain 2nd modal	
		%		%		%		%		%		%
P1 120	39	(32.5)	1	(2.56)	13	(33.3)	2	(5.1)	3	(7.7)	20	(51.3)
2 120	57	(47.5)	19	(33.3)	12	(21.1)	4	(6.7)	5	(8.8)	17	(29.8)
3 120	95	(79.2)	15	(15.7)	8	(8.4)	6	(6.3)	31	(32.6)	35	(36.8)
5 120	90	(75)	12	(13.3)	5	(5.6)	3	(3.3)	36	(40.0)	34	(37.8)
7 108	96	(88.9)	7	(7.3)	1	(1.0)	3	(3.1)	44	(45.8)	41	(42.7)

Table 5.3.2: Modal auxiliaries used in corrections (all items)

set out: we discuss one column at a time, since each merits some mention. The first column shows us the total number of corrections attempted. At the lower end of the age scale, we have P1 Ss attempting corrections nearly one-third of the time, while the P2 Ss try nearly half the time. The greatest change comes between P2 and P3 with the latter giving corrections nearly four-fifths of the time. There is a levelling out at P5 and then a very high level of 88.9% achieved by P7. There must be a strong case for concluding that it is only by P3 that Ss have any strong sense of the consistent unacceptability of the items: consistent in that the same subcategorisation rule is always being broken.

The second column 'multiple' subsumes a number of categories with very low frequencies. First there are unacceptable multiple constructions such as *shall she must ...? *might I got to...? *has she sps'd to ...?¹⁴ a handful of which occur through all age groups (P1-1; P2-5; P3-6; P5-4; P7-3), and which appear to be genuine performance errors. Very occasionally the P2 Ss repeated an item verbatim as an attempted correction (perhaps with altered intonation). Then there are items which incorporate the first or second given modal in an appropriate collocation, for example, I might have to ..., she must have to... (P2-9; P3-4; P5-1). The frequency of this type of construction

with P2 ensured that the 'multiple' category was their most highly represented, and it is the use of multiple constructions which principally differentiates their results from those of P1. The last kind of multiple construction is an appropriate one - where the two forms are related to both the first and second modal of the test items. These are principally found with the might can item, which we discuss below. The fact that there was a reduction of acceptable multiple constructions suggests that the older children thought that the intention of the task was partly to reduce the number of modals per se.

In the third column we have single replacement forms which are unrelated to the test modals. For example, need to have to → want; has she must → will. A relatively high proportion of P1 and P2 corrections are of this type (33.3 and 21.1% respectively) but it falls away sharply to 1% at P7. This could be taken to indicate that the younger Ss are aware some adjustment is necessary, but are unable to control the appropriate form or meaning correctly. It is just possible that they are not completely clear that a change of both types is not required. After all, the instructions were not explicit about maintaining an equivalence of meaning and some relationship of form, but the older Ss seemed to sense that this is part of the task constraints¹⁵. In any event, over the whole developmental span, very few 'related meaning' (column 4) responses were offered (3.1%-6.7%). It is much easier to come to a correct answer by simply maintaining the first or second modal, as the older subjects seemed to realise.

If we look at column five and six together, we see that P1 and P2 are much more likely to retain the second than the first modal (with the relative proportion more striking with P1). This effect is somewhat tied up with the response on the question items, where one strategy was to delete the first modal, yielding an acceptable statement as a correction. However, with P1 this preference for the second modal was also evident with the statement items, and for P2, even where questions were offered as corrections.

In absolute number the older Ss used far more formal equivalents - retention of the first and second modal, and there is a balance between use of the first or second test modal. For the P3's and P5's it seems that there is no genuine preference on specific items, but with the P7's we find on four items that there is a distinct preference - in different

directions so that the total is balanced. We could say that from P3 upwards, the children have a flexibility of response, and can choose which modal to retain.

We may take a strict criterion of corrections which are formal equivalents of the test items. By doing this we find the Ss form three groups. First, P1 and 2, with a low 19.1% and 18.3% respectively. There is a considerable jump to P3 and P5 which have 55 and 58% respectively. Another slightly larger jump brings us to 78% for P7, which indicates a very consistent and thorough grasp of the formal constraints of the task.

Now that I have described details of response for judgements and corrections I can introduce a modest set of summary statistics to show in general terms the developmental effect we have been able to describe. The Ss were assigned scores on the whole task, given scores for categories of judgement and correction for each item as follows:

<div>A</div> <table> <tr> <th colspan="2">Judgement</th></tr> <tr> <td>Acceptable</td><td>0</td></tr> <tr> <td>Unacceptable I</td><td>1</td></tr> <tr> <td>Unacceptable II</td><td>2</td></tr> </table>	Judgement		Acceptable	0	Unacceptable I	1	Unacceptable II	2	<div>B</div> <table> <tr> <th colspan="2">Form of correction¹⁶</th></tr> <tr> <td>Statement</td><td>1</td></tr> <tr> <td>Question</td><td>3</td></tr> </table>	Form of correction ¹⁶		Statement	1	Question	3	<div>C</div> <table> <tr> <th colspan="2">Modal used</th></tr> <tr> <td>Ungrammatical</td><td>-1</td></tr> <tr> <td>Unrelated</td><td>1</td></tr> <tr> <td>Related</td><td>2</td></tr> <tr> <td>Actual form</td><td>3</td></tr> </table>	Modal used		Ungrammatical	-1	Unrelated	1	Related	2	Actual form	3
Judgement																										
Acceptable	0																									
Unacceptable I	1																									
Unacceptable II	2																									
Form of correction ¹⁶																										
Statement	1																									
Question	3																									
Modal used																										
Ungrammatical	-1																									
Unrelated	1																									
Related	2																									
Actual form	3																									

(This subsumes the information discussed at Figure 5.3.1 and Table 5.3.1 and 2. The multiple forms, if ungrammatical, are scored -1, or dispersed through the other categories in C). This yielded a range of scores 0-5 for statement and 2-8 for question items. Maximum total score was 87 (9x8 + 3x5). Using the Mann-Whitney U test I compared adjacent groups to see where the developmental difference was greatest. The results are set out in Table 5.3.3. We see that there was no significant difference between P1 and P2 nor between P3 and P5, but there is a significant difference between P2 and P3 ($U = 14.5$, $p < 0.01$) and P5 and P7 ($U = 19.5$, $p < 0.025$).

Groups compared	\bar{X} Score Younger group	\bar{X} Score Older group	U	p
P1 versus P2	22.6	33.7	24.5	n.s.
P2 versus P3	33.7	53.7	14.5	0.01
P3 versus P5	53.7	57.8	28	n.s.
P5 versus P7	57.8	74.7	19.5	0.025

Table 5.3.3: Comparison between age-groups on overall performance on
Acceptability task

This statistical picture serves to confirm our observation that the two youngest age groups seemed to have comparable difficulty with the task. There did seem to be a big change at P3 with more appropriate judgements although there was a consistently more immature strategy with the form of the corrections. I would see P3 to P5 as a period of consolidation with some degree of competence evinced. Then there is an upwards shift to P7 where there is considerable accuracy in judgement and control over corrections.

There are also a number of points to be made about the particular items on the task. First, it is noteworthy that even with the older subjects (P5 and P7) it is possible to make a crude ordering of the acceptability of the items. While about half the items elicited two or three 'Okays' from the children, the following constructions were found unacceptable to all the subjects: has she must? does she must have to? and might can. The last shows that the subjects were all 'standard' in their judgements, although a number of them, when questioned, said they had heard the form. At the opposite end of the continuum, 11 Ss accepted should I have to? and 7 accepted I'm supposed to have to¹⁷. One reason for this finding might lie in the fact that the modal pairs both differ in the expression of tentativeness or unreality within the pairs. So instead of generating a mere redundancy reading the subjects may look for some other interpretation. One admittedly farfetched interpretation could involve casting oneself into a role, e.g. should I act as if I have to? or I'm supposed to be under obligation to do

We put in two identical forms to test response consistency: they were need I have to? The pattern of responses was not identical, but not particularly different either. These items were the easiest for P2, and it was at P7 that preference was shown, and this was for have to. It was at this level too that we have some evidence for control of the modal form of the question need I? with five of the six instances occurring here. However, with the statement I'll need to have to go, the P7's preferred will need to, the younger subjects showing no distinct preference.

When comparing performance on has she must? versus should she must? there was no preference on the first item, but with the second, should is preferred as a question marker (at P5 and P7). Possibly this has to

do with the fact that should ... is far more common than has (she) to as a question marker, so the strategy of dropping the second modal does not yield equally familiar structures.

Looking at performance of do I must gotta? in comparison with does she must have to? we find that in the first item, only the P7 show some preference for the second modal, which they uniformly change to do I have to? The structure of the second item is easier insofar as it already contains this structure, and showing the least variability on any item, there is a distinct preference for the second modal, i.e. do I have to? The first item contains a second aberrancy as do - gotta? does not occur; a strict parallel with the second item should have been have I must gotta? We would then have looked to see whether have I gotta? was the preferred correction.

If we compare should she must? and should I have to? we find, as noted above, a preference for should as question marker in the first item, but in the second this does not occur, and there is a slight preference for have to. However, the relative number of corrections is low for the second item, as it was judged 'acceptable' more often than any other structure. This gives us a clue to the processing of the item: it must be by analogy with do I have to? that it is seen as acceptable (although it does not occur after a do item), and where judged as unacceptable, the rhythm might suggest a simple substitution by do. The argument for analogy also explains the relative acceptability of must I have to? but in this case, must is slightly more likely to be retained as the question marker.

Performance on the statement I'm supposed to have to is relatively good even at P1, and up until P5 the preference is for have to, changing sharply to supposed to at P7; however, corrections weren't given as often with the older children when compared to the other statement I'll need to have to, principally because the former was seen to be acceptable more times. It is not clear what underlay these differences in judgement.

The item shall that child will? showed the children nearly as likely to use shall as will, except P7 who seemed to slightly favour shall. It's odd that shall should have been retained, since it yields an exceptionally formal question, but there is no precedent for the Ss exclusively fronting the second modal¹⁸, so they could not be expected to have done so in this item.

The last item is might can: we have mentioned that it was generally considered unacceptable (from P3 upwards). It is worth noting that two non-auxiliary paraphrases were offered here, viz. I might know how to (P3) and I probably can, but in general the responses were might be able to or else can. In general this seemed to be one of the easier items, perhaps because a double modal construction was an appropriate correction. However, it is difficult to know how one would check this.

5.3.4. Conclusions and implications

We have drawn a detailed picture of the children's performance on this task, and we would want to know what conclusions we can draw about their competence on such a task, and refinements in design that subsequent studies might make.

We first discussed the initial judgements which the children made. Nearly two-fifths of the P1 and P2 Ss responses were 'acceptable', and these children were much more likely to make the incorrect judgement than to say that they didn't know. Although the response possibilities which I gave them did not include 'I don't know', some children did answer this way. It is difficult to decide whether their judgements of 'acceptable' were due to some response set, whether they genuinely thought they were acceptable, or whether they did not fully understand the question. For this age the level of appropriate responses is much lower than the literature suggests for the detection of selectional restriction violations (about 80% at 5 years), which is a semantic/pragmatic task and therefore presumably easier. Some of the spontaneous remarks made by the P1 and P2 Ss reveal differing conceptions about the deviance (after this age the children rarely offered any comments, but they did smile a lot at the items): "doesn't sound right"; "the other one (test item) is a topsy turvey way of saying it"; "that's silly 'cos it's naughty" (standing in puddles); "that's a silly way to say it"; "that's daft"; "that's silly". It seems that only the first two comments make reference to the form, which is consonant with Gleitman's et al. (ibid) observation that five and six year olds tend to talk in terms of things "not making sense". It might be the case that they don't possess the vocabulary for talking about form, except that presumably most would have been capable of saying as one child did "there's too many words in there".

When we focussed on the kinds of corrections children made, we found that the developmental trend was towards preserving the form of the test items; specifically, the interrogative form seemed to be more difficult to maintain. While the P3 Ss were reasonably accurate in their judgements and even in their modal forms used, they showed a strong tendency to give a declarative correction on the question items. It is as if they cannot cope simultaneously with all the constraints of appropriate performance.

Patterns of modals used in corrections showed that the youngest subjects either tended to preserve the second modal of the test item or else give an unrelated response. These Ss attempted a relatively low number of corrections, but this seemed to increase significantly at P3 to P5 with concomitant accuracy in form. The P7 Ss performed very well indeed in both making judgements and making appropriate corrections. We felt that the two youngest groups performed similarly, that there was a leap in performance at P3 and then again at P7. This must have involved differential understanding of task requirements as well as formal control of the structures.

The fact that P7 Ss did not uniformly judge the test items to be unacceptable we felt might be a function of test construction. It is also perhaps possible, that even though a unitary syntactic rule was being violated the results were not uniformly unacceptable. It might have been possible to get a crude rating of unacceptability from the older Ss. This would be the first of my suggestions for future research.

With regard to item construction, it is possible that we could get earlier judgements of unacceptability if we increased the degree of deviance either by collocating two modal auxiliaries, e.g. *will she might? *might she may? or even introducing a conflict of degree - necessity and possibility, e.g. *Might she must?¹⁹ It would be interesting to add a number of distractor acceptable items, although these may not have any specific effect with the youngest Ss who over-generalised the notion of acceptability with test items.

Finally, it would be interesting to ask for explanations, even if it were only at a couple of points during the task. It's possible that the youngest Ss might be able to locate the locus of deviance accurately given sufficient items as examples, but that their minimal preoccupation with form might preclude any effect here. Even given the

same task, it would be valuable to change and complicate the instructions over such a wide developmental span as we covered so as to extract maximum information about the children's capabilities at each level - also to progressively prevent a ceiling effect. The difficulty about conserving the method to ensure comparability of results necessarily means putting the youngest subjects at a disadvantage - as in our study - or else making the task seem slightly ridiculous to the older children (for example, by getting the Ss to attribute anomalous sentences to a 'silly' person or toy).

This concludes our section on syntactically-oriented tasks. In the next chapter we will be examining children's performance on tasks tapping their ability to construct paraphrases, make synonymy judgements and also judgements about the relative strength of actuality implications.

CHAPTER SIX: SEMANTIC AND PRAGMATIC STUDIES

6.1 Introduction to Paraphrase and Synonymy Studies

The first two studies reported in this chapter focus on the same aspect - the sense relations which hold between the different items in the modal system. However the focus is different insofar as the Paraphrase Task is a production task and the Synonymy Task a comprehension task, so the data are distinct but have interesting parallels.

The notion of a 'paraphrase' may be taken to refer to the rephrasing of a whole passage, but may equally well be taken to refer to the shorter act of stating differently, or in the words of my task 'saying in your own words', or to giving a synonym. Palmer's (1979) system relies on the possibility of paraphrase to give the meaning of the modals. These paraphrases are not necessarily other members of the modal auxiliary system, for example, epistemic may - 'it is possible that', dynamic circumstantial can - 'it is possible for'. One may also set up paraphrase criteria which elucidate semantic gradience within the modal system (e.g. Leech and Coates; 1980).

There appears to be almost no developmental work on paraphrase, owing perhaps to the difficulty of constraining responses and subsequent analysis. Yet language exercises at school commonly involve this, for example, in comprehension exercises and *précis*. In a study of sentence paraphrase Smith (1973, cited Beilen, 1975) found that five to seven year old children had great difficulty in producing paraphrases of passive and active sentences, but had little difficulty in paraphrasing cleft forms (e.g. It was the girl who closed the door). Subjectively it would seem easier to 'reduce' a cleft sentence to a simple declarative than to effect the major structural changes between active and passive sentences¹.

The notion of paraphrase would seem to be pre-theoretic and relatively simple, but this is not to say the act of paraphrase is very complex itself. However, the related notion of synonymy is theoretically more problematic: it can be seen as a sense relation holding between lexical items. Lyons (1977, p. 202) would have the criteria for sameness of sense made directly dependent on the descriptive ('cognitive' or 'denotative') meaning of utterances. Two or more expressions will be defined to have the same sense, i.e. to be

synonymous over a certain range of utterances if and only if they are substitutable in the utterances without affecting their descriptive meaning. Two statements will be descriptively equivalent if there is nothing entailed² by the one that is not entailed by the other.

It is also useful (especially when we consider the items on the Actuality Task, reported later in this chapter) to define the sense of expressions in terms of pragmatic implication. Given that U_i and U_j are both statements, an utterance U_i pragmatically implies an utterance U_j if the production of U_i would normally be taken to commit the speaker not only to the truth of the proposition expressed in U_i but also to the truth of the proposition expressed in U_j . The notion of truth here is defined in terms of the speaker's belief that something is so (not in terms of fact or logical necessity). Different speakers may hold partly different beliefs about the meaning and applicability of words, but the descriptive semanticist may generally limit himself to specifying the intersections of these sets of implication (Lyons, *ibid.*, p. 204-5) as indeed I will do here.

It can however be maintained that there are no real synonyms, that no two words have exactly the same meaning. Palmer (1976) points out that it would seem unlikely that two words with exactly the same meaning would survive in a language (presumably some principle of nonredundancy would be operative). Pairs of words which are possible candidates for synonymy may belong to different dialects (e.g. tackie versus plimsoll), different registers (e.g. odour versus stink), or be collocationally restricted (e.g. rancid with butter, addled with eggs). Palmer criticises the view that some words may be said to differ only in their emotive or evaluative meaning, as not very useful. He sees it as a mistake to separate out 'emotive' or 'evaluative' meaning from 'cognitive' meaning, partly because we are not very sure what precisely cognitive meaning is. It is not reasonable to attempt to define its meaning in terms of reference to physical objects. In this sense many adjectives and verbs will have little or no cognitive meaning. This would certainly not be a useful approach in trying to map out the relationships which exist in the modal system.

In this regard, it has commonly been thought that the auxiliary modals have synonyms (or paraphrases) in the catenatives³ : for example can: be able to, must: have to, should: ought to, will: be going to.

However, there are subtle differences of meaning here, along different parameters: for example, be able to has been thought to be exclusively subject-oriented, whereas can may be circumstantial in meaning as well. Must is supposed to indicate the speaker as deontic source, whereas have to is indeterminate as to the locus of deontic source (Larkin, 1969). However, it is not clear whether the average native speaker would be able to articulate this fine nuance of meaning (and this is a question we particularly address at 6.4 below).

The developmental literature appears to have focussed almost exclusively on sentence-synonymy - for example on active-passive sentence-pairs (Beilin and Spontak, 1969; Sack and Beilen, 1971) where the focus was on establishing the correlation between performance on a linguistic task functionally equivalent to cognitive reversibility, as measured by conservation. Beilin and his associates (further discussion in Beilin, 1975) were surprised at the 'considerable delay' in the ability to judge the equivalence in meaning of active and passive sentences-comprehension of the synonymity of active-passive pairs and also subject-object cleft pairs (e.g. it's the boy that pushes the girl versus it's the girl that the boy pushes) was not achieved until about the second grade, i.e. seven years. (Inspection of results shows a big jump between six and seven years, with little change from four to six years.) They explained their results in terms of a too heavy memory processing load or else that the younger children did not fully understand the task requirements which were that they should focus on underlying rather than superficial structure relations. In a later study Sack (1973) interpreted a similar pattern of results as indicating that the younger children attempted to transform sentences to the same structure before making a judgement about meaning equivalence. One assumes that they could fail at this stage of the task, before even making an assessment of equivalence. Adults are assumed to make a direct assessment of underlying relationships.

The studies by Beilen and his associates had what is potentially a crucial ancillary finding which they do not interpret, and that is that children were uniformly better (4-7 years) at judging non-synonymous sentence pairs to be different, than synonymous pairs to be the same. A more recent study by Hakes *et al* (1980) also found this trend but to an even greater extent. Hakes presented four to eight year olds with a variety of types of sentence synonymy. Besides the

active-passive-cleft sentences, Hakes also looked at Existentials (e.g. There is an apple on the table versus The table has an apple on it), Temporal and Spatial Relations (before versus after....; front versus behind....) and Size-Amount (more.... versus less....) ⁴. The comprehension and memory demands of the task are seen to partly account for the results (as indeed they must have done for the youngest children) but Hakes also invokes another factor to account for the difference between the two types of judgements. The results for the youngest children, significantly worse than chance for the synonymous pairs, would seem to signify a systematic strategy: Hakes would have it that these children are effecting a form comparison only which predicts the pattern obtained of appropriate nonsynonymous judgements but inappropriate judgements on synonymous sentence pairs where meaning is conserved with form changes. (There may of course be differential difficulty in performing form comparisons adequately.)

Although Hakes does not present tables of specific values, a rough approximation of the values would seem to indicate the greatest difference in performance on synonymous pairs lies between six and seven years. There was little developmental effect on the nonsynonymous pairs.

In the only data that we can find on lexical synonymy, Sack (ibid), in considering her previous work with Beilen, was concerned that younger subjects (i.e. before seven years) might be guided by the principle that if two sentences sounded different, they meant different things. She tested five to eight year olds on sentences such as The puppy sleeps or The baby dog sleeps, and found that even the youngest children had no trouble in judging this kind of lexical substitution as equivalent in meaning. The difference between Sack's results and those of Hakes et al would perhaps be due to a number of different factors. First, by the different processing loads for sentences in the two studies: for example the pair given above compared to The little boy fed the dog before he watched the television versus After the little boy fed the dog he watched television. Secondly the form comparison strategy may be resorted to in assessing sentence synonymy where the need is to compare items in different structural relations rather than the items themselves (for example a simple declarative with a related cleft sentence). Thirdly, Sack's stimulus items had concrete referents and this may

make the task relatively easier. This factor is to be borne in mind when comparing these data to our own which are based on what are essentially abstract verbs.

Although the literature is not directly relevant to our semantic domain, we might expect in a study of modal synonymy that there would be some difficulty for children up to the age of seven years, and we would perhaps anticipate the use of strategies on such a task.

We turn then to a consideration of children's capacity to produce paraphrases of sentences containing modal auxiliaries, and to make judgements about the synonymy or otherwise of sentence pairs containing modal expressions.

6.2 The Paraphrase Task

6.2.1 Design

6.2.1 (a) Subjects

These were as follows: ten from each group, except for nine in the oldest group. P1, age 5,7 years; P2, age 6,4 years; P3, age 8,3; P5, age 9,4; P7, age 11,6 years. The children were equally represented for sex, from a fee-paying school. (Details of selection are described in the previous study.)

6.2.1 (b) Construction of task items

The two youngest groups were given half the items, the rest of the Ss were given twenty sentences. The first ten items were read onto a tape-cassette by a woman with an educated Scottish accent (and served as stimuli for the Actuality task as well, which we describe later in this chapter). I read the remaining sentences to the older children. The range of modal auxiliary meanings covered is as follows:

- | | |
|---|--|
| 1. <u>will need to</u> : discourse-oriented | 2. <u>will</u> : dynamic insistence |
| 3. <u>should've</u> : dynamic past | 4. <u>have to</u> : discourse-oriented |
| 5. <u>willing</u> : dynamic | 6. <u>must</u> : discourse-oriented |
| 7. <u>can</u> : dynamic ability | 8. <u>have been going to</u> : past
progressive intention |
| 9. <u>should</u> : discourse-oriented | |
| 11. <u>is going to</u> : future volitional | 10. <u>have got to</u> : discourse-oriented |
| | 12. <u>are to</u> : discourse-oriented
obligational |

- | | |
|----------------------------------|---|
| 13. <u>supposed to</u> : dynamic | 14. <u>would</u> : habitual/tentative epistemic |
| 15. <u>will</u> : dynamic power | 16. <u>must</u> : epistemic |
| 17. <u>need</u> : dynamic | 18. <u>could</u> : past/tentative ability |
| 19. <u>may</u> : epistemic | 20. <u>might</u> : epistemic |

The complete sentences may be found in Appendix VI. The average length of sentence was 7.35 words, and the content was supposed to be unambiguous and simple with situations the youngest children could readily understand.

6.2.1. (c) Administration of the task

The children were told they were going to hear a lady "say some things". She would say each thing twice and they were to listen carefully to remember what she said. Then they were to say what the lady said over again in their own words. To show the children which part of the sentence was to be paraphrased several examples were given first:

I have to do the work.

I must do the work.

Also,

I can do the work.

I'm able to do the work.

and so on.

Then the children were asked to "try a few practices" and similar sentences were given, until it was clear that the child understood that it was only the modal auxiliary which was to be changed. (Notice that it was not possible to demonstrate the dimensions of the task without using test forms, but of course different sentences were given, and the first three test items were different from the practice items.)

To help the youngest Ss (P1 and P2) I started the paraphrases for them, stopping where the modal occurred, waiting for them to finish it for me, for example That child....., Nancy said she..... . It was not necessary to do this with the older Ss who were able to grasp the task constraints from the examples more readily.

For the older Ss, when we'd done the first half of the items, I explained that I thought they would be able to manage some more sentences (waiting for some sign of assent) and these I would simply read to them.

The Ss' paraphrases were tape-recorded, and transcribed later.

6.2.2 Results and discussion

We can get a broad picture of the children's general competence on this task by examining the cumulative frequency tables at 6.2.1 and 6.2.2.

Items 1-10

	N=	Don't 1. know	2. Repeat	3. Other	"Implica- 4. tion"	5. Related	Para- 6. phrase
P1	100	32	5	21	14	13	15
2	100	20	11	16	24	12	17
3	100	9	14	14	16	18	29
5	100	14	2	11	15	17	41
7	90 ¹⁾	2(2.2)	0	8(8.8)	11(12.2)	12(13.3)	57(63.3)

1) Equivalent proportions for N=100 given in brackets.

Items 11-20

	N=	Don't 1. know	2. Repeat	3. Other	"Implica- 4. tion"	5. Related	Para- 6. phrase
P3	100	10	12	20	5	19	33
5	100	14	2	4	5	26	49
7	90	4(4.4)	1(1.1)	1(1.1)	7(7.7)	20(22.2)	57(63.3)

Tables 6.2.1 & 2. Cumulative pattern of responses on Paraphrase Task⁵

The first category is self-explanatory. For the "Repeat" category I included reponses which were formally the same, with perhaps some intonation change, or else where the child changed some other part of the sentence apart from the modal, or added extra information at the end.

For example, for I must get a new black dress this winter to

I must get a new black dress for the winter, or to

... [Repeat] because I'm feeling cold

[P3 responses]

For the "Other" category, I coded reponses which did not seem to show any close relation to the test item, for example, should've in I should've visited my granny in hospital replaced by might [P1] or could've [P2] .

The fourth category I have called "Implication": by this I mean the attempted paraphrase has captured not the sense of possibility or necessity but rather the appropriate actuality implication of the modalised event - that it did/will or did not/will not happen⁶. For example should've implies didn't, have to often implies will, willing implies might (if Nancy is willing to come to my party, she might well come).

Coming closer to a completely accurate paraphrase, I have distinguished a "Related" category. The distinction between this and the final category lies in the fact that the replacement modal is of the correct kind and degree, but differs perhaps in the strength of the implication of actuality. For example, for should, replacement by have to/must would be considered less appropriate than ought to/be supposed to. Conversely I would treat ought/should as related to are to, where must/have to are closer paraphrases.

What I consider to be accurate or clear paraphrases of the different test modals will become clear in our discussion of the children's performance on the individual items.

We should now be able to make some sense of Table 6.2.1. If we look at the pattern for P1 and P2 together, we see that the P1 Ss make no attempt nearly one-third of the time, P2 one-fifth of the time. Looking to the last two categories together we find that the two groups only manage 28 and 29 appropriate responses respectively. The P2 children make more attempts at paraphrase, give more repeats (11 vs 5) and "implication" forms (24 vs 14) but the younger group has the higher number of "other" responses (21), slightly more than their accurate paraphrase total. Looking at category 6, true paraphrases, we see that there is very little change between the two youngest groups, but an equal increase of 12 between P2 and P3 and again between P3 and P5. The increase between the oldest groups is somewhat larger, 16 (or 22.3%).

A question of minor interest is whether the two halves of the task differed in difficulty for the three older groups (Table 6.2.1 versus 6.2.2) although to be fair to the P1 and P2 subjects, comparisons should be restricted to inspecting Table 6.2.1 (and comparison below, of P2 and P3 is based on items 1-10, whereas P3 and P5 are compared over all 20 items). For the first two categories the responses were essentially the same. "Other" responses increased for P3 and P7, "related" responses increased for P5 and P7 and paraphrase responses increased

for P3 and P5. Improved performance for P3 and P5 were mostly at the expense of a reduced number of "implication" responses, and the overall improvement was most dramatic at P5. For the P3's there was a slight improvement overall, looking at the item analysis, but improvement for the older groups is shown in the fact that five of the items for Part One were 'more difficult' than any in the second part. (We will later give a rank ordering of items in terms of difficulty.)

From Tables 6.2.1/2 we can derive a simpler set of figures contrasting approximate and accurate paraphrases with other responses, shown at Table 6.2.3. This shows a developmental trend clearly. Viewed dichotomously, the results show that there is little difference between P1 and P2 Ss, with a relatively low proportion of responses (28% and 29%) being related or accurate paraphrases. If we take performance on the task as a whole, the P3 children give appropriate responses one-half of

Type of response: N =		Inappropriate ^a		Appropriate ^b	
		First half	Second half	First half	Second half
P1	100	72	-	28	-
2	100	71	-	29	-
3	100/100	53	48	47	52
5	100/100	42	25	58	75
7	90/90	31 (34.4)	13 (14.4)	69 (76.6)	77 (85.5)

a: Sum of categories 1-4, previous table. b: Sum of categories 5-6, previous tables.

Table 6.2.3: Comparison of appropriate and inappropriate responses on paraphrase task

the time; for the P5's the proportion is roughly one-third to two-thirds inappropriate to appropriate, and for the P7 Ss it is approximately one-fifth to four-fifths respectively.

We would have to say that the P1 and P2 children do not show any real competence on this task. Where they do attempt a response, it is likely to be relatively inaccurate. This tendency is more pronounced with the P2's and directly corresponds to the decrease in 'no responses'. The P3's, where they attempt a response show a reasonably even distribution of response types, and can be said to show a modicum of control on the task. A stronger control is seen with the P5's, but

there is as much change again when we look at the P7 results. It is only at this stage that we could say the children show some real control of the task⁷.

We would like to know where the significant changes or development occur between the different age groups. I assigned each subject a score for the test, as a sum of the scores for each item. Items scores were simply assigned for the categories as follows: Don't know: 1; Repeat: 2; Other: 3; "Implication": 4; Related: 5; and Paraphrase: 6. On this ordinal measure the P1 and P2 Ss could score between 10 - 60 and the older children 20 - 120. The P3's were given 2 scores, 10 items only for comparison with P2, and the whole test, for comparison with P5. Comparisons between groups adjacent in age were made and the results are shown in Table 6.2.4, using one-tailed test assuming the older

Age Groups	\bar{X} Score Younger Group	\bar{X} Score Older Group	U	p
P1 vs P2	31.6	31.8	41.5	n.s
P2 vs P3	31.8	40.5	24.5	.05
P3 vs P5	81.4	90.7	25	.05
P5 vs P7	90.7	105.6	13	.01

Table 6.2.4: Between-groups comparison by Mann-Whitney U test

group would be more competent. Examination of Tables 6.2.1 and 6.2.3 would have led us to predict that there would be no difference between P1 and P2 on the task, and the statistic here bears out our observation. There is a significant difference between the three other pairs of adjacent age groups, the most significant being between P5 and P7. Seven of the nine scores for the P7 were higher than all the P5 scores, principally because there were considerably fewer "don't know" responses, and rather more accurate paraphrases (45 vs 63.3% of total responses).

By way of introduction to performance on specific items, we show a rank-ordering of the items in terms of difficulty, showing the number of 'appropriate' responses for each item: see Table 6.2.5. As we cover all twenty items P1 and P2 data are excluded⁸.

All but one item (will of insistence) was within the range of 46% and 80% correct responses. There is no detectable pattern of any type of modality being easier (referring back to 6.2.2(b)). Reasons for unexpected difficulties are posited in the discussion which follows.

Item	Score	Rank	Item	Score	Rank
willing	24	1.5	have to	19	11.5
supposed to	24		must	19	
have got to	23	4	must (epis)	19	
need	23		would	19	
may	23	6.5	will	18	14
might	22		have been	17	15
will need to	22		going to	16	16
are to	21	8	should	15	17
could	20	9	be going to	14	18
			should've	14	
			can	14	20
			will	7	

Table 6.2.5: Rank order of paraphrase items in terms of number of appropriate paraphrases

Now that we have examined overall performance on the task, we can consider qualitative performance on individual items. Looking at pairs of similar modal items together makes the picture more meaningful.

Looking at will need to (Item 1, Pt 1) we find that have to is more heavily favoured as a paraphrase than must (20 versus 4 instances overall) with only the P2's having no clue as to a paraphrase. This item, together with have to and have got to shows the best performance of the P1 Ss. It is only the two oldest groups that manage to retain the will + have to: this explicit futurity marking is of course lost with must, but P7 shows no use of this latter form here. However, where no explicit future marking is required, with needs (Item 17, Pt 2) there are three instances of must from P7, and performance is still excellent here (7 paraphrases). The P5's here lapse into using 5 instances of "related" forms (should and ought to). Although there is no absolute paraphrase here (OED gives "require, be under necessity or obligation to") I take it that in Scottish English there is a strong implication of actuality, therefore have to would be the closest form.

For the item (Pt 1, no 9) I should really write to my parents I had intended should to have an unreal meaning ("but I don't feel like it") but I realise that "really" could have been taken as emphatic ("otherwise they'll be very worried") so it is difficult to know how

to categorise some of the proffered forms. While I was anticipating ought to only 3 P7 Ss and 1 P5 S volunteered this, with some focus on must by all groups, especially P5 (with four instances): so perhaps the stronger reading was more salient. Slightly puzzling is the fact that in every case "really" was dropped from the attempted paraphrases.

The parallel past form should've cannot of course have must have as paraphrase, since it is epistemic: the suppletive had to has a positive implication of actuality, which we don't want. Acceptable paraphrases are ought to have (5 out of 6 instances from P7) and was meant to (1 instance from P7) although was supposed to would have done as well. P5 produced no other paraphrase, and P3 one was to, though we do get the related forms wanted to and needed to. Perhaps it was the past element which made it more difficult than the previous form, and there certainly seems to be some barrier which needs to be overcome before there is a flood of correct responses at P7 level. Overall it is only the P7 children who really offer ought as a paraphrase for obligational items, with 11 instances. P5 offer 2 and P2 offer 1.

A form close in meaning to should is be supposed to (Item 13, Pt 2), but interestingly should is not offered as a paraphrase by the P7 Ss and only 3 times by the younger children. The most frequently given paraphrase (8 instances) is be meant to. The P3 children gave 6 appropriate responses, and the older children all appropriate responses, including the related forms must, have (got) to, is to.

The two related forms have to (Item 4) and have got to (Item 10) show an interesting contrast in responses. For have to I take must and perhaps need to, to be close paraphrases, with ought/should as related. Even the P1's have some grasp of this relationship, with five instances of must. Interestingly three of the P2's consider she has to as being different in form to I have to; three P3's give the implicational form will, and even the oldest children do not give must without exception (6 at P5, 4 at P7). While must is given 17 times overall for have to, it is given slightly less often - 13 times for have got to; what is offered nearly as often (12 times in all) is the form have to (P3: 4 instances; P7: 5 instances). It is interesting that these should be considered distinct forms (and this is so with adult speakers too). Where there were four replacements by need to for have to, there were none for have got to, but four instances of replacement by should for each form.

The data for the must item (No. 6, Pt 1) show that have to is given as paraphrase twelve times, peaking at P7 with four instances, and then there are three responses with will have to. We have a couple of instances of need to similarly but wonder why we do not have a simple equation of must/have to and have to/must paraphrases. The instances where there is not a reciprocal paraphrase are seen in a greater incidence of "implication" responses (13 versus 8 cases of will) as well as more instances of should (9 versus 5 responses for must and have to respectively). It is noteworthy that there is no replacement by have got to at all; also that until P7 where there are four instances, before that we have only single instances (P1, 3 and 5) of intra-subject reciprocal paraphrase of must and have to. This makes some mockery of the semanticists' concern to construct elegant systems of relationships.

Another discourse-oriented obligational form was are to (Item 12, Pt. 2), which is closely related in meaning to have to and must. The P3 children favoured the former, and the P7 children favoured the latter form, the two forms being equally represented overall. We also have 4 instances of will and 2 of be going to which are of indeterminate status. It is not clear whether the Ss intended the obligational meaning ("because I say so") or whether there are cases of simple futurity paralleling a possible misreading of the test item as a simple present, or else simply as implicational (if you are to, you will).

Turning to our data on will, willing and would, we found that it is very difficult to give a clear paraphrase of will (stressed, Item 2). Only one P5 child gave a true paraphrase, the catenative insists on. The P1 Ss seemed to have no grasp of this item, although two instances of must suggest an obligational reading. With the older children we get the implicational forms might, does and always and it is difficult to know what to make of the 5 instances of shall: one can hardly assume the children are operating with some notion of undertaking, since this would be very formal indeed and inappropriate for the context - That child will stamp in puddles. Possibly they are importing an equivalence which they know holds in other noncontrastive contexts. However, it will be remembered that we only have one instance of will in our case study data and the younger children may well be very unfamiliar with the form.

The 'power' use of will in Pigs will eat anything (Item 15, Pt 2)

is fairly difficult to paraphrase: it may be seen as an 'omnitemporal statement' in which case the auxiliary can be dispensed with as in pigs eat anything, or perhaps existentially as pigs can eat anything. Interestingly there were no instances of the former⁹, but 8 responses with can (3 from P5; 5 from P7). We also have 4 instances of related should, and 3 responses of etymologically related shall, 2 of which came from P3, who otherwise were unable to provide any appropriate responses. One P5 child provided the adverbial normally, which seems to capture something of the habitual aspect of the meaning.

There seem to be two different aspects of the meaning of willing (Item 5) which could be focused on in providing a paraphrase: first there is the sense of 'disposed to' which is expressed in would like to, want to. The sense of 'consent to', 'undertake to' is taken up in will, can and be able to. The two oldest groups managed to capture a range of these meanings in most of their responses, but the three younger groups found things more difficult, sometimes producing 'implication' responses like she might come, she did come.

The sentence That game would go on for ten minutes (Item 14, Pt 2) could have a habitual or predictive meaning. In the former interpretation, probably will is the closest paraphrase, but this form together with perhaps should and then might/may are related forms for the latter interpretation. We got this range of responses from the two older groups, but the P3 Ss seemed only able to offer will (4 instances with 3 each from the older groups).

Another item in this group is intentional be going to (Item 11, Pt 2). The most obvious paraphrase for this is will, but no P3 Ss respond with this; the closest they come is shall (2 instances). The P5 children give their highest number of "don't know's" on this item, but otherwise, give 4 will's, and the paraphrase about to; the oldest Ss give a majority of will, but also will be going to and the lexical verb intends. The perfect progressive form have been going to (Item 8) generated a large range of responses, but no appropriate ones from P1 and only 2 from P2. The only form all four groups used was have been wanting to (8 instances). Other forms included have been meaning to, have been about to, have been intending to, and less closely related was going to and was trying to.

One minor observation about the WILL related items is that the P3 Ss were rather more likely with seven instances, to respond with shall than the older children (P5, 3 instances; P7 gave 2). Although part of an etymological pair, shall does not capture the range of meanings which were being expressed, and the older children's responses were more apt.

The closest paraphrase for can (Item 7, Pt 1) is be able to, but there were only 8 instances of this, 6 from P7, and the three youngest groups did not use it at all. These Ss preferred could, which is less close in meaning, but of course closer in form; otherwise there were 11 'implication' responses of will. We only have data for the three older groups for could (Item 18), with the most accurate paraphrase would be/was able to but we only have 3 instances here. Perhaps it is intrinsically more difficult an item, but perhaps the adverb easily (She could easily draw a picture) made it more difficult to introduce the semi-modal. The youngest children changed the kind of modality to epistemic in might and maybe and combined in might be able to (1 instance each).

The last three items to discuss are epistemic must, may and might, only attempted by the three oldest groups (Items 16, 19 and 20). There are a number of possible paraphrases for She must find it fun to play with me including she thinks it's fun, I think she finds it fun, it looks as if she finds it fun, and perhaps will, which is not of the same degree but very similar. All the groups gave a low response of accurate paraphrases (3 each) and we have a slightly puzzling tendency which is present at P7 to give the necessity forms has to, ought, should. We know that these forms are exceptionally rare in their epistemic interpretation, even with adults, so we can only conclude that a discourse-oriented interpretation is intended. I would perhaps suggest an injunction to pretend ("you pretend you find it fun") as in a game.

With epistemic may, we find that half the time P5 and P7 children substitute might for it; otherwise we have will, and will probably (also from P3) which is somewhat stronger a form; and there is also the implication form does. While we have 13 instances of might replacing may, there is not the reverse pattern on the might item, where we only have 6 instances of may replacing might. What makes up the difference is the replacement form could (7 instances) which is not, however, used by P3 at all. We would have predicted this since epistemic could is a rare form. Other responses included sometimes (the circumstantial

equivalent) (P3), maybe (P5) and perhaps (P7), added redundantly sentence initially. In general it seemed that all the groups were able to retain the epistemicity of the two test items.

6.2.3 Summary of conclusions

The two youngest groups P1 and P2 did not show any real competence on this task: where they attempted responses, these were relatively inaccurate. There was no difference between the groups of any significance: and they both gave significantly more inappropriate than appropriate responses.

There was some change between the youngest children and P3 children where there was an equivalent number of appropriate and inappropriate responses. However, it was only by P5 that the children were approaching real control of the task, and by P7 we have a picture of near-adult competence on what is clearly a difficult task.

There was a significant difference between adjacent groups from P2 upwards. When we look at performance on the different items, no type of modality seemed to be more difficult to paraphrase than any other. However, we will postpone drawing conclusions about specific items until the final discussion chapter, after we have further data of spontaneous paraphrases in children's justifications.

6.3 The Synonymy Task

6.3.1 Design

6.3.1 (a) Subjects

These were the same children as in the previous study: 10 children from each of P1, 2, 3, 5 and 7. Ten Scottish undergraduate students did a written form of the task.

6.3.1 (b) Construction of the test items

There were twenty pairs of sentences, all to do with "the door being shut or shutting the door". The intention was to minimise processing requirements and make the parts of the sentences to be

contrasted as salient as possible. The following are the pairs as presented, in a fixed random order with the proviso that no two adjacent pairs contained the same item.

1. I can... (ability/possibility/permission)/I could... (ability/possibility)
2. I should... (dynamic necessity)/I'll be wanting to... (volition)
3. I might...(epistemic)/I'll maybe... (epistemic)
4. I will... (volitional, undertaking)/I'm willing... (volitional)
5. The door might...(epistemic)/The door must... (epistemic/dynamic)
6. I'm supposed to... (dynamic)/I've got to... (dynamic)
7. I should... (dynamic)/I ought to... (dynamic)
8. I could... (ability/possibility)/I was able to... (ability/possibility)
9. Would you like to...?(suggestion)/You must... (obligational)
10. I should... (dynamic)/I will... (volitional/futurity)
11. I am going to... (volition)/I'll probably... (epistemic)
12. The door may... (epistemic)/The door will... (futurity/epistemic)
13. I would like to... (volition)/I must... (dynamic)
14. I could... (ability/possibility)/I should... (dynamic)
15. Can you... please? (request)/You must... (dynamic)
16. The door will... (undertaking/epistemic)/The door would...(habitual/epistemic)
17. The door might be... (epistemic)/The door may be... (epistemic)
18. I must... (dynamic)/I'm supposed to... (dynamic)
19. I was able to... (ability/possibility)/I tried to... (lexical)
20. I ought to... (dynamic)/I must... (dynamic)

Because of the simplicity of the context, a good number of the items could have various readings; however this did not appear to affect the results in any unexpected direction, rather providing useful data about which particular senses were salient for the children. There were seventeen different modal expressions included in the items.

6.3.1 (c) Method

The children were listed individually. The P1, 2 and 3 children did the task once, but an attempt was made to assess the reliability of responses on the items by testing the P5 and P7, on two occasions,

separated by at least a week. A typical introduction to the task, including as many examples as necessary, would be as follows.

Each child was told "I'm going to say some things to you: they're all to do with shutting the door. I'm going to ask you whether the two things I say mean the same or mean different things. But we're going to have some practices first, to see if you understand what I want you to do.

Listen carefully to what I'm going to say:

1a "I can do the work" ... and

b "I'm able to do the work".

Do these mean the same or mean different things?" (Child replies) "I see. Now listen to these two: (I give some other simple examples such as the following).

2a "I have to go back now"

b "I must go back now".

3a "I might go back to class"

b "I must go back to class"

4a "I should listen carefully"

b "I might listen carefully".

After three or so pairs of examples with the child either getting them all correct or agreeing with my corrections, we proceeded with the task. If the child made an inappropriate judgement, I asked him to justify it. I tried to help the child understand that even though the words were not the same, they could or might mean the same thing. (We return to this issue in discussion.) With the older children I would immediately point out that my sentences about shutting the door would sound very similar, with perhaps only one word changed. They were to listen carefully to the changed words in the second sentence and they were to decide whether they meant the same as the words in the first sentence. The instructions were thus more abstract, but still constituted a task about meaning in context, because I was not asking about a 'pure' judgement about the meaning of the words per se: and the children certainly used context to justify their judgements.

The Ss' responses were manually transcribed onto prepared data sheets in the testing situation. The children were simply required to say 'same' or 'different' as a response.

In the second testing session I explained to the P5 and P7 children that I was going to give them the same task again. I reassured them that I was not trying to catch them out, but wanted to know if people's ideas about meaning changed with time. This time I was going to ask them to give a reason for their answer. These justifications were tape-recorded for later transcription.

The adult Ss were given a written form of the test, with the same instructions but no examples.

6.3.2 Results and discussion

We shall first discuss the youngest children's understanding of the task, after which we set out the pattern of responses on individual items. This will give us a measure by which to judge competence on the task within each age group, and also enable us to make inter-group comparisons. Finally, we will discuss the bases of the older children's justifications.

The P2 children were tested first: although it was clear that not all the children fully grasped the nature of the task, I felt justified in carrying it out with each of them. As we will see, they tended to adopt the response strategy of saying "same", although the majority of pairs were indeed "different". However, when I came to test the P1 children, I sensed a great difficulty on the part of the children in understanding the examples. I tape-recorded some of these dialogues, and the content is intriguing. Four of the children seemed confident enough to try the task, and although one child did relatively well, there is insufficient data to draw statistical conclusions.

The P1 children seemed to be operating with the rule ... if the forms are different, the meaning must be different, as they consistently judged synonymous pairs to be different. The justifications I tried to elicit included "because they sound different", "because they have different words", "because you said it differently the two times", "different words, some of the words are not there". I would agree with the children that there were different words, but tried to get the children to understand that they could still mean the same thing. However, they would still continue to make the same judgement about subsequent examples (with the exception of one child who then

articulated the distinction "it's the same [meaning] but it's different words"). Bearing in mind that we are dealing with an abstract level of lexis, with words that have no concrete referents, we would have to say that these children are failing to conserve meaning across form differences.

We have group data from all the other age levels. A central concern was to establish at which age children would make consistent adult-like judgements about item pairs. I produced my own categorisation of the items as 'same', 'different' and 'similar' ('indeterminate' or 'can't decide'). The question arises as to how I would ascribe to an age group a judgement of this third kind since there were only two response choices. This could manifest itself in split responses within a group, and indeed did so with the older age groups. However, this pattern needs to be discriminated from lack of clear choice. Fortunately, it was possible to adopt the strategy that one could assume some pairs were genuinely indeterminate if other judgements were clear. Looking at Table 6.3.1 should make these points clear. The grouping of the items is based on the P7 responses¹⁰. The judgements for each item are shown, together with the group's 'decision'. If the decision is heavily weighted in either direction, we may say the group made a significant judgement. (Significance levels were derived on the binomial test.)

Group judgements		P2				P3				P5				P7				Adult			
Sentence pairs		N=10				N=10				N=10				N=10				N=10			
		Same	Different	Decision	Significance level	Same	Different	Decision	Significance level	Same	Different	Decision	Significance level	Same	Different	Decision	Significance level	Same	Different	Decision	Significance level
SAME																					
could/was able to		7	1	S ¹	-	5	4	S	-	9	1	S	.011	7	3	S	-	5	5	nd	-
should/ought to		7	2	S	-	8	0	S	.004	8	2	S	.055	10	0	S	.001	10	0	S	.001
might/will maybe		7	3	S	-	5	4	S	-	10	0	S	.001	10	0	S	.001	10	0	S	.001
might/may		6	2	S	-	7	3	S	-	8	2	S	.055	10	0	S	.001	8	2	S	.055
DIFFERENT																					
was able to/trying to		6	4	S*	-	3	7	D	-	0	10	D	.001	0	10	D	.001	0	10	D	.001
could/should		7	2	S*	-	3	7	D	-	3	7	D	-	0	10	D	.001	0	10	D	.001
should/'ll be wanting to		3	6	D	-	5	4	S*	-	2	8	D	.055	1	9	D	.011	0	10	D	.001
would like to/must		7	3	S*	-	4	5	S*	-	1	9	D	.01	0	10	D	.001	0	10	D	.001
should/will		6	2	S*	-	6	3	S*	-	2	8	D	.055	1	9	D	.01	0	10	D	.001
may/will		6	2	S*	-	1	8	D	.02	1	9	D	.01	0	10	D	.001	0	10	D	.001
might/must		6	4	S*	-	2	7	D	-	0	10	D	.001	0	10	D	.001	0	10	D	.001
will/willing		4	4	nd	-	6	1	S*	-	7	3	S*	-	0	10	D	.001	1	9	D	.01
be going to/will probably		7	2	S*	-	2	8	D	.055	2	8	D	.055	0	10	D	.001	0	10	D	.001
can you please/you must		5	3	S*	-	3	7	D	-	2	8	D	.055	0	10	D	.001	2	8	D	.055
would you like to/you must		3	7	D	-	4	5	D	-	1	9	D	.01	0	10	D	.001	0	10	D	.001
ought to/must		8	1	S*	.02	5	4	S*	-	2	7	D	-	1	9	D	.01	3	7	D	-
SIMILAR																					
must/supposed to		6	3	S	-	4	5	D	-	6	4	S	-	2	8	D	.055	1	9	D	.01
can/could		8	2	S	.055	3	6	D	-	3	7	D	-	6	4	S	-	0	10	D	.001
will/would		9	1	S	.01	4	6	D	-	6	4	S	-	5	5	nd	-	2	8	D	.055
supposed to/have got to		5	4	S	-	6	2	S	-	6	4	S	-	4	6	D	-	4	6	D	-

¹. don't know responses excluded

* Judgement in opposite direction to P7

Table 6.3.1: Pattern of significant responses on synonymy test

It will be seen that in general the decisions made by the P7 Ss were definite, with 16 significant choices. Most of the decisions were in the direction that I had predicted: slightly surprising was the indecision involving the items with supposed to, which I would have expected to be given predominantly 'same' rather than 'different' judgements.

The (young) adult responses are included for reference. It will be seen that they seem slightly more likely even than the P7's to judge the sentence pairs as 'different'. For the 'similar' items, which I excluded from the subject scoring (see below) this does not matter for our purposes, except that it is interesting that can/could and will/would are judged as 'different', which strictly speaking, they are. If must is synonymous

with have to, it's slightly puzzling that they should not be judged in the same way in comparison with be supposed to. However, for the 'same' and 'different' judgements, we only have two results not significant in the same direction as P7: could/was able to seen as 'similar' (where indeed there may be slightly different actuality implications (cf 6.4 below)) and ought to/must, not significantly different (although once again, these two words do have differing actuality implications).

If we look at the three youngest age groups we see an interesting diminution of 'same' judgements with age: P2 have seventeen 'same' items, P3 give ten, P5 eight and P7 have five. This means that P2 children have nine and P3 have five items with opposite decision to P7 and P5 have only one, will/willing (the asterisked items on the table). This excludes the 'similar' items, although we do have the interesting phenomenon of P2 with two significantly 'same' items can/could and will/would here, which may be because these have the same core meaning, the children ignoring the different overtones. This explanation will not, however, serve to explain the significant judgement of 'same' with ought to/must. Perhaps nothing more need be made of these judgements but that, since the response set was towards 'same' judgements, some items were likely to be judged significantly so.

The P3 children show a closer approximation to the P7 pattern, but with only three significant judgements (in the appropriate direction) with 'same' for should/ought to, 'different' for may/will and be going to/will probably. The P5 children continue this trend with significant judgements on 13 items, but less highly significant than P7 judgements.

In deriving a score for each child on the test, the 'similar' items were excluded: this allowed for a maximum score of 16 correct responses.

The scores were used in determining whether there was an age effect on this task. A Mann-Whitney U test was used and the results are shown at Table 6.3.2. Once again we have only calculated

Age groups	\bar{x} score younger group	\bar{x} score older group	U	p
P2 vs P3	6.8	9.1	34	n.s.
P3 vs P5	9.1	11.3	27	.05
P5 vs P7	11.3	14	10	.001

Table 6.3.2: Between-groups comparison by Mann-Whitney U test

differences between adjacent groups. There was no significant difference between P2 and P3¹¹, but there was between P3 and P5 and also between P5 and P7. These results parallel those found on the Acceptability Task and we will have to try and account for this.

Before we pass on to the analysis of the justifications, it would be useful to make a comparison of the strategies our children appear to have been using in comparison with those reported in the related literature.

In the introduction (at 6.1) we reported Sack's (1973) finding that 5-7 year olds found no problem with lexical equivalence of concrete nouns, and her conclusion that they were therefore not operating with the rule that 'difference in form entails difference in meaning'. However my own exploration with P1 children (5 years) indicated that they were operating with this rule given my task examples. The difference in these findings may be accounted for by the kind of synonymy which the children are asked to judge in the two studies. The question 'Do they mean the same or different?' may be considerably easier to understand when the critical words have concrete referents than when they do not. In Sack's study 'mean' refers to reference and in my study it refers to sense. Besides the possibility that sense relations are more difficult to assess than referent relations (especially at an early developmental stage) it is also the case that the modal system is particularly intricate and abstract in its sense relations.

We also have to account for the clearly discernible response tendency to say 'same' from P2 age which diminishes by about P5. There appears to be no comparable development in the literature and we would have to develop our own account for this change in strategy. Previous studies have shown a change between 6 and 7 years when children are more capable of judging synonymy appropriately, but they report no overgeneralisation of 'same' judgements. Perhaps we could say that now children become aware that meaning may be conserved with form change, but perhaps if the meaning comparison is very difficult to make and the structures otherwise formally identical, the 'safest' response is to judge the pair as 'same'. Converse evidence for this hypothesis could be seen in the fact that P2 children correctly judged as 'different' two sentence pairs which did not contain two auxiliary modals for comparison; i.e. should/will be wanting to, would you like

to/you must. The simplest way to test the viability of this explanation might have been to question the children on specific inappropriate 'same' judgements: they might be able to articulate that they are not absolutely sure of any differences.

There was a large body of data generated from the oldest Ss' justifications of their judgements: there are some interesting parallels to the Paraphrase task data, and also insights into what aspects of modal meaning the children are able to articulate spontaneously. I decided to ask only the older children for justifications because of the difficulty of the task: it would seem to be more difficult than the paraphrase task insofar as the subject has to consider two meanings simultaneously. However, it would have been interesting to see what justifications the younger children would have given for incorrect judgements.

We cannot be sure whether the justifications were actually the basis for the judgements given just previously¹². Occasionally a child changed his judgement on greater thought required for the justification, and certainly the justifications seemed to require considerable effort.

I was interested in the children's responses not so much in the specific comparisons made, but in the bases for these comparisons: that is to say, whether they would focus on appropriate paraphrases or differences in actuality implication, or degree of choice or compulsion or perhaps contextual exemplification. Hence in the discussion which follows we focus on responses to specific forms and not specific item pairs.

If we look at the dynamic (or discourse-oriented) necessity forms¹³, i.e. should, be supposed to, have got to, must and ought to we find an interesting constraint on the type of responses, and these are set out in Table 6.3.3. There were fourteen items in all, some cases of no justification, others where the child's response contained a number of

	Compulsion	Actuality	Paraphrase	Other
P5	24	23	56	3
P7	21	25	101	0

Table 6.3.3: Types of justification/definition on five necessity forms

different aspects. The 'compulsion' category is scored where the child refers to a deontic source, e.g. "she's been told to"; the actuality category where the likelihood or indeterminacy of the event is referred to e.g. "she might or might not"; a more complex answer might be "suggests that she should but doesn't suggest that she does" (paraphrase plus actuality). The compulsion and actuality responses were about as likely as each other, for both groups nearly equivalent. Paraphrase responses were far more common, and this trend is more pronounced for the older children. A possible reason for this preponderance of paraphrase is that this part of the modal system is particularly rich in paraphrases.

For the item should on the Paraphrase task, ought and must were principally offered. Ought was most offered by the P7 Ss and this is the case on this study too, but nearly as common is have (got) to, otherwise there is also meant to, be supposed to and must. It is surprising that we should get have (got) to and must which have stronger implications of actuality, but the actuality responses (fourteen in all) were evenly split between positing definite and indefinite actuality. On the be supposed to items the response was unanimous (13 responses) that actuality wasn't certain, but the 'strong' paraphrases have (got) to and must are as likely as more accurate paraphrases should, meant to. Performance on the two ought to items shows too that actuality is not absolutely sure, and in this case only tentative, unreal paraphrases are offered viz should, be supposed to, meant to.

With have got to we have the same trend as in the previous study - have to is favoured as a paraphrase form, to the near exclusion of must, and the positive implication of actuality is pointed out too. In the Paraphrase task we found that have got to was not offered as a paraphrase for must. Here it is the most common response, but closely followed by have to (30 and 25 cases respectively). Interestingly we also have should volunteered as a paraphrase even though the actuality responses all indicated definite implication. Responses explaining that must implies no choice (force, command, told) were also very common.

There were four items with will and the results are summarised in Table 6.3.4.

The most obvious point to make is that there was a far greater range of response than for the dynamic necessity items. The reason

Response type	P5	P7	Response type	P5	P7
Positive actuality	12	16	<u>Willing</u>	3	-
Obligation	4	10	<u>Be going to</u>	-	3
Undertaking	7	1	Volition	1	2
Epistemic	5	5	Repetition	1	-

Table 6.3.4: Explanations for four items with will

for this is that WILL has a greater range of meanings attached to it - volitional, simple futurity, obligational, undertaking and epistemic. However, the children did not pick up interpretations at random: for example, the epistemic interpretation was more common when will was contrasted with may. The strong actuality interpretation was noted in contrast to should and willing. Another point of interest was that it was only the P7 children that gave an obligational reading to The door will be shut (2 items), saying for example "It's going to have to be shut"; "it's a command". It's not clear why this reading, which is rather difficult to extract (it would have been natural with "you will shut the door") is preferred over the futurity one. Finally, it is interesting that there were only four instances of paraphrase with be going to (all by P7), a trend we noted on our previous task.

For willing the main aspects of meaning noted (contrasted with will) were the weak implication of actuality and that, on request, action will be taken. A much wider range of responses was given to would (also in relation to will), but where a difference was seen (10 instances), there were 3 references to past meaning and 3 to the fact that it is less positive ('probably shut') than will. On the request form would you like to...? half the P5 Ss seemed to see this as a literal question (with no conveyed implication), but both groups' most common response was to point out the element of choice (relative to you must). The similar item I would like to (versus I must) led the children to focus on the volition and absence of coercion, and the P5 Ss referred to the uncertain actualisation (3 cases) but also positive implication of actualisation. Overall the will/willing/would like to items showed very few paraphrase responses - 10 in all - far fewer than the necessity items: this may in part be due to the fact that there are fewer available paraphrases anyway for this part of the modal-futurity system. It is significant that no child spontaneously offered

shall as a paraphrase for will unlike when they were explicitly required to find a paraphrase in the previous task.

The CAN items show a similar wide range of responses. For can we get only 4 cases of spontaneous paraphrase with be able to, and the ability and actualisation readings more frequent than circumstantial possibility - probably because of the first person subject. There were three items with could and they yielded a plethora of 18 distinct readings, which are summarised at Table 6.3.5.

Response type	P5	P7	Response type	P5	P7
BE/WAS ABLE TO	8	2/3	Discourse-oriented	3	3
Possibility	6	7	CAN	2	3
Actualisation	3	3	Ability	2	3

Table 6.3.5: Explanations for four items with could

The children were able to point out that the possibility was past or tentative, that the actualisation was either contingent or not implied, and that the ability was past. The close paraphrase was able to was freely used by P5, more easily than on the paraphrase task, and can was used to show it meant the 'same' as could.

The could vs be able to item exemplifies an intrinsically interesting question. If the subject happens on the 'past ability' reading first, this would lead to a 'same' judgement. However, if the tentative, conditional sense of could comes first to mind, this could possibly lead to a 'different' judgement. The question arises as to how deep the processing would go - if the child gets a reading for the two words, is he likely to look for any others? Perhaps more persistent questioning would help, e.g. "Are they always different/the same?" Interestingly, I did not get any child insisting that the meanings were "same and different".

On the request form Can you shut the door please? five P5's and three P7's treated this as a literal question (about ability) whereas the 'please' should have identified the function. However, children from both groups did identify it correctly and also that there is an absence of compulsion and choice (relative to must).

The two items with was able to showed principally paraphrase

responses: can, 7 from each group and could, 8 from P5, 2 from P7 who were more concerned to spell out positive implications of actuality. It is interesting that the children did not see fit to preserve the tense correctly in their paraphrases (but we have no data for comparison for the paraphrase task).

The final group of words we are to discuss are epistemic may, might, will probably, will maybe. There was a wide range of paraphrases offered for may and might (2 and 3 items respectively) shown at Table 6.3.6.

	MAY		MIGHT	
	P5	P7	P5	P7
MAY/BE	-	-	2/4	4/2
MIGHT	4	4	-	-
MIGHT NOT	3	5	3	4
COULD	2	4	7	5
(WILL) PROBABLY	2	2	1	3
PERHAPS		1		5
WILL MAYBE			1	
(WILL) POSSIBLY	1			1
POSSIBILITY		1		
SOMETIMES			1	

Table 6.3.6: Range of paraphrases for might and may

The older children offered twelve more paraphrases here, and the same pattern emerged here as on the Paraphrase task - might is most commonly offered for may, but could is most commonly offered for might, although we do have instances of may and also maybe and P7 Ss also offered perhaps. The response of might not (usually - she might or might not) seems to be making reference to uncertainty of actualisation. On the might/must item, only a few of the children picked up the epistemic reading for must (2 from P5, 4 from P7), most preferring the discourse-oriented reading, albeit with the passive form (the door must be shut).

With the epistemic lexical expressions will maybe and will probably the response of might (not) was the most common, but for the former expression P7 also gave may, could and will probably.

It may have become clear through the preceding detailed discussion

that the P7 children were able to offer more adequate explanations of their judgements. Although it would be difficult to establish an objective criterion of adequacy, I did "mark" the explanations of the items for being able to adequately discriminate the difference or establish commonality of meaning, and this yielded a score out of twenty for each subject¹⁴. The younger children averaged 13.3 and the older children 17.8 adequate explanations and this difference is significant ($p < 0.001$, $U = 7$, one-tailed test). We have noted that the older children gave more paraphrases, and they were also more likely to give complex answers, for example a paraphrase plus reference to the strength of the implication of actuality. Although we have no comparable adult data, it is fairly clear that this last statistic reinforces the picture of competence on the part of the oldest children.

6.3.3 Conclusions and implications

The youngest subjects, P1, found the synonymy task almost impossible to do since they did not yet have the capacity to understand what underlies the notion: that is to say, that although words may have different forms, they may have the same meaning - reference or sense. Comparison with the literature shows that 5 year olds may understand sameness of reference - so one avenue of research would be to explore when the concept is acquired in the different domains.

The second age group, P2 children, appeared to be able to understand the basis for making judgements of synonymy but had the response set of replying 'same'. A possible reason for this is the sheer difficulty of making sense comparisons in a very difficult, abstract system, perhaps an overapplication of the principle that different words may have the same meaning.

At the P3 level the children are becoming capable of making accurate judgements but group responses did not show very definite trends. It would have been of interest to see whether children at this age could articulate the bases for their judgements especially insofar as there was still some tendency to inappropriate 'same' responses.

On the individual items the P5 children began to show significant correct responses but were not quite as 'sure' as the P7 (measured by the significance level). They were also able to give reasons for their

judgements although these were not always fully adequate.

As a group the P7 children showed a very clear pattern of responses on the specific items, concurring overwhelmingly with adult judgements. There were very high scores for overall correct responses on the task, and the children were able to adequately describe the reasons for their judgements, making free use of appropriate paraphrases.

The justifications which the two eldest groups gave comprised paraphrases, reference to choice or coercion (possibility or necessity), and strength of the implication of actuality. There were interesting parallels between the unsolicited paraphrases here, and those given on the previous task. Comparison of performance on the two tasks - synonymy and paraphrase - would seem to indicate that it was probably easier for the youngest children to attempt to say something in their own words, even though there was a high level of inappropriate responses, than even to understand the notion of comparing two senses. However, once some notion of synonymy is attained it was easier to make some passive comparison judgement than to actively seek out related terms in one's own semantic system. It is probably more difficult to construct 'perfect' paraphrases than to judge other pairs of modal expressions as being so, if we take the performance of children at the top end of the age range, and indeed this would seem intuitively to be the case.

Some refinements of (a) items and (b) method would be satisfying in terms of being able to assess theoretical claims about relationships within the modal system. In the case of the former, it would be interesting to include other pairs of items which Palmer (1979) would see as close paraphrases. These include CAN - BE ABLE TO; WILL - BE GOING TO; MUST - HAVE TO; MIGHT - POSSIBLE THAT; PROBABLE THAT - WILL and others. In view of our present results we might expect to get 'false positives' (i.e. 'same') judgements from children until perhaps P5, and the necessity of getting justifications is obvious.

We could get some kind of measure of the gradience of synonymy by asking children to sort sentences into piles that mean the same thing: one would get clusters of items and it would be interesting to see where the meanings are judged distinct enough to justify distinct piles.

Finally, as we have indicated earlier it would be interesting to explore different kinds of synonymy to try to establish relative

difficulty of making judgements such as those required on the present task. The development of lexical synonymy would seem to be a rich area of research, to try to establish the organisation of the lexicon as well as establishing the degree to which connections between items may be consciously established.

6.4 The Actuality Task

6.4.1 Introduction

Modality, by its very nature, is not concerned with facts: straightforward statements of fact are epistemically non-modal. The speaker, in making an unqualified assertion, is committing himself to the truth of what he asserts. In epistemic modality, the introduction of terms like must, certainly makes our commitment to the factuality of the proposition explicitly dependent on our limited knowledge. Similarly, in deontic modality, we are also not concerned with facts: in this type of modality, when we impose an obligation on somebody we are not literally describing either his present or future performance of the act¹⁵. However, it seems to be the case with discourse-oriented necessity¹⁶ uses (including explicit directives and deontic statements) that the choice of form indicates the speaker's assumption about the likelihood of occurrence of the event.

Consider for example the difference between the following two sentences:

- (1) I must go to the library this afternoon.
- (2) I should go to the library this afternoon.

In the first sentence the use of must indicates the likely actualisation of the event, whereas the use of should indicates that the obligation exists, but it will not necessarily be fulfilled. Should has been described as the 'unreal' necessity form (Palmer, *ibid*) or the conditional equivalent of must (Anderson, 1971).

These phenomena of differing degrees of actuality implication have been well-noted by Palmer (1977, 1979, 1980), but while he has marshalled a number of observations, I would disagree with part of his analysis, which is in terms of implicatures. This notion of implicatures, has been pretheoretically formulated as follows:

"What is implicated is what the addressee can reasonably infer but is not necessarily intended to infer, in the context in which the utterance occurs from what is said or is not said" (Lyons, 1977, p. 606).

One test for implicatures is that they can be cancelled or qualified in specific contexts, as for example in the following (given in Lyons, *ibid*, p. 595):

- (3) Did you try to phone John yesterday?
 - Yes and I got through straightaway.
 - I not only tried but I succeeded.

Here the inference that the addressee failed to make contact is explicitly cancelled.

To defend an analysis of actuality implications as implicatures, Palmer must be able to show that the implications can be cancelled or qualified in specific contexts. He gives the following example to show that the implication of actuality of can is cancellable (1977, p. 17)

- (4) Can you come?
 - I can but I'm not going to.

However, the implication from can to will is not very strong, since if it is possible for me to do something it is also logically and pragmatically possible for me not to do the same thing, so there is no contradiction of meaning involved here. A parallel example with should could also be constructed (I should but I'm not going to): here the example works again because of the conditional or 'unreal' nature of the obligation. The possibility of non-action is held open. But critically, a parallel construction with have to (or must) would not work¹⁷:

- (5) Do you have to come?
 - * I have to but I'm not going to.

The acceptable form here would have to be am supposed to (the 'unreal' parallel of have to) by which the speaker would be able to convey that he will not necessarily go and the hearer would be able to infer the speaker's attitude from his choice of form.

The implicature analysis would appear to work with unreal necessity and possibility forms, but examples with other forms show that it is perhaps more likely that we are dealing with some kind of

pragmatic presupposition made by the speaker in his choice of form. However, it would probably still be appropriate to use the term actuality implication, especially since our task is concerned with the ability of children to draw inferences from different terms used by a speaker.

Another point of difference between my analysis and that of Palmer's is that he would claim that must has no implication of present actuality, while he appears to reserve judgement about the future. It does seem to me to be possible to say I must go now or I must get on with a strong implication of actuality although it is the case that must is less used in Scottish English and possibly is slightly weaker in its implication than have (got) to.

One of the distinguishing features of deontic modality is that it has to have some more-or-less readily identifiable (deontic) source or cause. In making a deontic statement the speaker can identify himself as source by using must or should, but leave it unclear as to whether it is himself or another (or external source) by using have to or supposed to. It has been suggested (Larkin, 1969) that it is the "true" modals which are "subjective" or having the self as deontic source. (Parallels with possibility modals are you may (subjective) - you are allowed to (objective).) If the speaker is reporting a directive form, he may show agreement with the obligation by using must, should, or distance himself by using have to or be supposed to.

When we refer to past necessity, we are referring to something with factual status, and so what we want is to be able to express whether this necessity was actualised or not. There is no past of must and had (got) to is the suppletive indicating that the event was actualised. The 'unreal' forms should've, was supposed to refer to unactualised obligation. The parallel negative forms didn't have to and shouldn't have to refer to absence of coercion and improbable actuality¹⁸, and to past necessity not to do something and positive actuality respectively. The picture we have drawn may be summarised as follows (at Table 6.4.1), with need to inserted as well.

		Strong likelihood	Neutral or Unreal
DEONTIC SOURCE	Internal or	<u>have (got) to</u>	<u>be supposed to</u>
	External	<u>need to</u>	<u>will need to</u>
	Internal	<u>must</u>	<u>should</u> <u>ought</u>
PRESENT/FUTURE			

		Positive	Neutral	Negative
DEONTIC SOURCE	Internal or	<u>had to</u>	(<u>had got to</u>)	<u>was supposed to</u>
	External	<u>needn't have</u>	<u>needed to</u>	
	Internal	<u>shouldn't have</u> <u>oughtn't to have</u>		<u>should've</u> <u>ought've</u> <u>didn't need</u>
PAST				

Table 6.4.1: Dimensions of meaning of necessity forms

With regard to dynamic possibility Palmer¹⁹ has noted that be able to is more likely to refer to present actuality (= "can and do") and can to refer to future actuality (= "can and will do"); and that could cannot be used to refer to a single action in the past whereas was able to carries the implication of actuality

- (5) We are able to reduce expenses by bulk buying.
- (6) I can start teaching when I've finished this work.
- (7)* I read fast, and could finish reading the book last night.
- (8) I read fast, and was able to finish reading the book last night.

Both could've and couldn't have imply unactualised possibility.

- (9) I could've come if you'd asked.
- (10) I couldn't have come even if you'd asked.

A similar picture is presented by WILL where volitional will takes its strong actuality implication by virtue of its relation to 'grammatical' futurity will (although as Palmer points out, volition does not necessarily imply actuality). Similarly to could, would cannot be used to refer to a specific past event (although it can refer to habitual or successive actions); would have has a negative actuality implication, but wouldn't

have has a positive actuality implication.

(11)* I asked him and he would come.

(But the reported form of the undertaking He said he would is acceptable.)

(12) He would've come if he hadn't been busy.

(13) He wouldn't have come if He'd been too busy.

The other related form BE WILLING TO Palmer claims has a strong implication in its past form was willing to, but I would maintain it remains neutral, as in the present tense.

(14) He was willing to come but it turned out he was too busy.

Some of this complex picture of dynamic possibility and volitional will and willing is summarised at Table 6.4.2.

TIME	Positive	Neutral	Negative
Past (completed)	<u>could (hab.)</u>	<u>was willing</u>	<u>could have</u>
	<u>was able to</u>		<u>could not have</u>
	<u>would (hab.)</u>		<u>would have</u>
	<u>wouldn't have</u>		
Present	<u>be able to</u>	<u>is willing</u>	<u>are not able</u>
			<u>? cannot</u>
Future	<u>can</u>	<u>is willing</u>	<u>won't be able to</u>
	<u>will be able to</u>		<u>cannot</u>
	<u>will</u>		

Table 6.4.2: Implications of CAN, WILL and related forms

Palmer's explanation for this range of phenomena is perhaps too simplistic. He says for example,

"If modality is concerned with events and propositions whose factual status is in doubt, it is not surprising that a modal verb [but not an equivalent semi-modal] may be inappropriate to refer to past events whose factual status is established" (1979, p. 164).

This explanation would account for the absence of a past form of must, relative to had to, but how would he account for the occurrence of should have and shouldn't have? Fortunately however, even if we cannot find a simple explanation of these phenomena, we do now have some kind of framework within which we can ask children questions about meaning. There has been no work of this kind done with children and the present study is essentially exploratory.

What we are concerned to explore in the present study is whether children can make judgements about the degree of likelihood of an event when qualified by different modals, whether they can make comparisons of the strength of the actuality implication of pairs of modals, and whether they can accurately determine the deontic source associated with particular modals.

6.4.2 Design

6.4.2 (a) Subjects

These were as follows: ten from each of P1, 3, 5 and 7. The average ages for the groups were as follows: P1 - 5,8 years; P3 - 7,7 years; P5 - 9,8 years and P7 - 11,8 years.

Children were randomly selected from their year groups, and groups had equal numbers of boys and girls. The subjects were different from those in the previous three studies, but formed part of the Construction Changing study (carried out 1980-1981 session).

6.4.2 (b). Construction of the items

There were sixteen sentences, read onto a tape-cassette by an educated Scottish woman. The children were also shown a photograph of the speaker and were told that she, Morag, also worked with children, like the researcher did. The reason for recording the test sentences was because when piloting with very young (preschool) children it was found that the children used me as a reference point for answering the questions. For example, when I said "I have to wash my hair tomorrow" and asked "Does this mean I really will?" one child said "No, I don't think so because it looks perfectly okay to me!"

I hoped that the children would focus more on the language per se when listening to recorded utterances. All the sentences had 'I' as subject, and while the content will become clear in discussion, a summary list is given here:

- | | | |
|--------------------------|--------------------------|-----------------------------|
| 1. <u>must</u> (2 items) | 6. <u>will need to</u> | 11. <u>oughtn't to have</u> |
| 2. <u>have to</u> | 7. <u>should</u> | 12. <u>was willing</u> |
| 3. <u>will have to</u> | 8. <u>should've</u> | 13. <u>would</u> |
| 4. <u>have got to</u> | 9. <u>shouldn't have</u> | 14. <u>can</u> |
| 5. <u>need to</u> | 10. <u>ought to have</u> | 15. <u>was able</u> |

The contents of the sentences were intended to portray simple, unambiguous situations which the youngest children could understand: however, we will need to discuss further the young child's conception of adult motivations.

6.4.2 (c) Administration of the task

The children were told about the speaker and shown her photograph; they were told they were going to hear her "say some things"²⁰. She would say each thing twice and they were to listen carefully to remember what she said (and could have anything repeated whenever they wanted). From time to time I asked a child to repeat what she said to check whether they did remember adequately; however a third repetition of the sentence was given when I stopped the tape and said "She says ...: does this mean ...?" and the specific questions followed.

The primary intention of the task was to determine the children's understanding of the strength of the actuality implication: the key question here was "Does this mean that she really will (did) do this, or does it mean she might (have) or can't we say for sure?" The three parts to this question were varied randomly in their order over all the items on the task; it was also repeated until the child understood what the options were. The difference between "might" and "can't say for sure" is meant to be that between indeterminate and indeterminable: we will see later that this was not a useful distinction to maintain.

Irrespective of their answer to the first question, the children were asked "Why do you say that?"²¹ There was no constraint imposed on the form of their justification.

A third question for the necessity items related to the child's conception of the deontic source of the form: for example whether the child could articulate that the use of must is meant to denote the speaker is imposing an obligation on himself. The question asked here was "Do you think Morag is deciding for herself that she must/need to/ etc. or do you think somebody else is telling her to?" The self/other parts of the question were changed round randomly over all the items.

For some of the items I asked the children to make a comparison of the given sentence with a similar sentence. For example I asked them to "listen to this again: I must go to the nursery. Now listen to this: I have to go to the nursery. Which one is more sure I must or I

have to? In which one are we more sure that she really will do it, I have to or I must? Or are they both as sure/the same?"

For items 7-10 and 16 I was able to ask directly whether the sentence meant that she did or didn't do X as an extra alternative. It was found on an earlier form of the test that if I asked questions about the past, for example formulating the question for I must go into the nursery tomorrow as "Do you think that she might have... or that she didn't?" the youngest children were quite likely to take the task as one of pragmatic guessing whether the speaker was lying or not. This was clear in their justifications. I had to try to make it clear that we were trying to understand the meaning of what she was saying. It seemed to help by changing the question from "Do you think?" to "Does this mean?" and not including "didn't" as a possible choice except where the meaning necessitated it as for shouldn't have or oughtn't to have.

6.4.3. Results and discussion

(a) Direct judgements of actuality implication and comparison of relative strengths

The judgements here involved making a choice from

- (a) will (did)
 - (b) might (have)
 - (c) we can't be sure
- and in some cases
- (d) didn't.

The distinction between (b) and (c) turned out not to be useful. This was because even the oldest Ss didn't seem to discriminate between these alternative meanings of indeterminateness and indeterminability and the youngest subjects in some cases might have treated (c) as meaning "I'm not sure" - subjective uncertainty. Hence (b) and (c) were collapsed in analysis, and the responses of the youngest children examined to see whether some of their (c) responses should be recategorised as "don't know", an alternative which I always allowed the children²². Only in three cases did I make this reassignment, on the criterion of the child's being unable to justify his answer. Overall the children seemed easily able to make a definite judgement, with only 8 "don't know's" on the ten items presented here. Leaving aside these data, it was possible to

dichotomise the judgements into WILL - strong implication and MIGHT - weak implication of actuality: the results are shown below at Table 6.4.3. (The response for each group on every item is presented.)

	P1		3		5		7		Cumulative z-score		p
	WILL	MIGHT	WILL	MIGHT	WILL	MIGHT	WILL	MIGHT	WILL	MIGHT	
1. HAVE GOT TO	5	5	8	2	9	1	9	1	32	8	-3.6 .001
2. HAVE TO	5	5	7	2	6	4	7	3	25	14	-1.6 .055
3. WILL HAVE TO	7	3	7	2	8	2	7	3	29	10	-2.8 .003
4. MUST ₁	7	2	8	2	7	3	8	2	29	10	-2.8 .003
5. MUST ₂	7	3	7	2	7	3	8	2	29	10	-2.8 .003
6. NEED	7	3	7	3	8	2	7	3	29	11	-2.6 .004
7. WILL NEED TO	5	5	4	6	4	6	3	7	16	24	-1.1 n.s.
8. SHOULD	7	3	1	9	1	9	2	8	11	29	-2.6 .004
9. WILLING	3	4	3	7	3	7	3	7	12	25	-1.97 .024
10. WOULD	6	4	4	6	6	4	6	4	22	18	-0.5 n.s.

Table 6.4.3: Implication judgements for ten items

Leaving aside specific details for the items, we can see that from P3 upwards, the direction and strength of the judgements is very much the same. For this reason it was decided to perform binomial tests on the cumulative scores (z scores where $N > 25$), and the significance levels give an ordering very much in line with what we would have expected from the literature: For items 1-8: HAVE (GOT) TO $> \begin{Bmatrix} \text{MUST} \\ \text{NEED} \end{Bmatrix} > \text{WILL NEED} > \text{SHOULD}$. It is noteworthy that have got to is much stronger than have to²³, and that must and need to are judged equally strong, but this may well be a Scottish English effect. Also, that need to is stronger than will need to²⁴, presumably because the former in specifying the present indicates some greater urgency. In specifying "might" we have restricted ourselves to at most a neutral specification of actuality and to get an unreal judgement may well have needed to give a further alternative choice like "probably won't". However, it is not certain whether offering children another possible response would have been counterproductive where they already had a lot to remember. In any event should was the only item which generated a significant MIGHT judgement: perhaps a useful check would have been an ought to item as well, but the effect is clear.

For willing the three oldest groups judged that if "she was willing to come to the party" this meant that she "might" come, but would in the

same context was not seen as significantly strong. It is slightly puzzling that what is generally taken to be an undertaking form should not be regarded as a guarantee. Perhaps the fact that it was in a reported form weakens the guarantee.

Some corroboration for these results is found in the comparison data. Here the children were to choose which item was "more sure" or judge that they were both the same. In Table 6.4.4 we see the results set out with the judgement indicated for each pair of words. From items 1 - 4 we can see that have (got) to is seen slightly more often to be Strength preference

Item pair	Item A	Item B	Both the same	Measure of choice	Significance level
	<u>have to</u> ^a	<u>must</u>	"same"	χ^2	p
1. <u>must/have to</u>	18	8	13	3.84	n.s
2. <u>must/have to</u>	11	7	18	5.16	n.s
3. <u>have to/must</u>	12	11	17	1.55	n.s
4. <u>have got to/must</u>	13	9	16	1.95	n.s
	<u>will have to</u>	<u>have to</u>	"same"		
5. <u>will have to/have to</u>	2	9	25	14.8	< .001
	<u>should</u> ^b	<u>will need to</u>	"same"		
6. <u>should/will need to</u>	5	20	8	13.09	< .01
	<u>must</u>	<u>need to</u>	"same"		
7. <u>must/need to</u>	20	8	6	10.14	< .01
	<u>should</u> ^c	<u>had better</u>	"same"		
8. <u>should/had better</u>	7	1	12	9.4	< .01
	<u>was willing</u>	<u>would</u>	"same"		
9. <u>was willing/would</u>	1	17	6	18.25	< .001

a: Items 1 and 2 were must test stimuli; 4 was have got to.
 b: Data from 2 eldest groups.
 c: No data from P1 here.

Table 6.4.4: Judgements of relative strength of actuality implication on nine sentence pairs

stronger than must, but the pair is more often judged to be 'the same' (the fairly even spread of responses and absence of statistical difference is evidence of this). Have to and will have to are judged to be the same;

and it would have been very interesting to see whether we would have got a differential response to have to versus have got to both in view of the results cited above and also from the previous tasks where for example, the children considered them sufficiently distinct to offer have to as a paraphrase for have got to.

Items 6 and 7 show that must is stronger than need to and will need to stronger than should. This clarifies the picture given at Table 6.3.1 and also data from the Paraphrase Task (although of course we're dealing with different subjects there). It would probably not be inappropriate to infer that given these judgements, when (older) children give should as a paraphrase for must (and vice-versa) and have to as a paraphrase for will need to, and need to as a paraphrase for must, they must, at some level, know that these are not absolute paraphrases, since they differ in their strength of actuality implication.

Slightly surprising is the judgement shown at 7 that should is in some cases seen to be more sure than had better, or else equivalent, which is what we would have predicted. But there is a clear picture of the children considering would more sure than was willing.

In summary, for the necessity items we can slightly reorder the ranking suggested by the single judgements as follows:

$$\left\{ \begin{array}{c} \text{HAVE (GOT) TO} \\ \text{MUST} \end{array} \right\} > \text{NEED} > \text{WILL NEED} > \text{SHOULD}.$$

For the past form should've all P1 children but one were able to explain that this meant the speaker "did not get to visit her granny in hospital", and all the subjects judged that shouldn't have meant that "she did eat two packets of crisps". However, on the related items ought to have and oughtn't to have the two youngest groups had some trouble giving correct judgements and with respect to the latter form four from the two age groups didn't know what it meant at all. Across the two pairs of items should've/ought to have, shouldn't have/oughtn't to have there was a significant performance shift (sign test $N = 8$, $p = .004$) in both cases. We may recall that on the Paraphrase task (bearing in mind once again that these were different subjects) it was only the oldest children who freely offered ought to and ought to have as paraphrases (for should and should've respectively).

Our theory would predict that can does not necessarily have strong present actuality implications (although it may do so for future time:

"can and will do"); also, that was able to should have strong past actuality implication. Two items were included to try to tap these meaning aspects, but in both cases it seemed to be a more difficult or unexpected sort of judgement to make. For the item I can ride a bicycle I think the puzzlement related to the fact that whereas the assertion makes a statement of ability, of a kind of possibility there is nothing except contextual clues which would give an indication of likelihood of the action. The results showed 13 'do', 26 'might', 1 'don't know', the difference for the first two categories just falling short of significance ($\chi^2 = 3.71$). It is interesting that 'we can't be sure' was favoured over 'might' for the older children, indicating perhaps that there is a genuine indeterminability here.

Surprisingly, for was able to there was not a significant judgement for 'did' (23) over and against 'might' (16, with 1 'don't know'). I did explain to the children that the truth value of the statement I was able to play the piano pieces I learnt last week was not at issue, so the reasons given by the oldest children included "she didn't say she did", "it doesn't say that her piano teacher asked her to". It is worth noting though, that shift of responses from predominantly 'might' for can to predominantly 'did' for was able to was significant (sign test $N = 20$, $p = 0.021$).

It is my contention that these judgements, about either necessity or possibility might well be strongly influenced by the amount of contextual detail which is specified. While I only have preliminary data from an earlier version of this task, with can, it is plausible that specifying the time and place of the event referred to by the main verb would make the event seem more likely. For example I can play tennis versus I can play tennis at the country club on Saturdays or perhaps I have to work in the nursery versus I have to work in the nursery tomorrow at half-past nine. The accuracy of this claim would however require further research for substantiation.

Still thinking about context, it would probably have been the strongest test of word meaning, if as on the Synonymy Task, we had had the same context across all the items, so the children would have had to focus on the different items themselves.

We noted that, from P3, children made judgements in the predicted direction for the individual items, but there was not a strong picture

of significant judgements within each age group (the significant results were obtained for the cumulative judgements). Really the only clear picture was obtained with HAVE GOT TO and SHOULD, within the groups.

Why should this not absolutely clear picture have appeared? One possible reason is that this aspect of the meaning is not very salient (especially when the children might have been trying to consider the whole sentence context). Another reason could be that the method failed to elicit clear judgements. One possible alteration of the method, more in line with the initial analysis in terms of pragmatic presupposition would be as follows: each item would be a small cameo of a situation in which the speaker is purported to find herself. For example we could say that the speaker had been told to go to work at school, but she didn't specially want to go since she had very little time and a lot of shopping to do as well. The child would then be asked which the speaker would say, either I have to go to work at school or I'm supposed to go to work at school. One could set up a series of scenarios and offer children pairs of sentences from which to choose the one most appropriate to the situation. The strong vs unreal distinction could be tapped in this way, but finer gradations of meaning might be less amenable to this test (e.g. must vs need to).

(b) Judgements about the locus of authority or responsibility

For the first eight - necessity items the children were also asked to specify whether the speaker had decided for herself or whether somebody else had said "she should/needs to" etc. The older subjects insisted upon saying 'either' as a third type of response: unfortunately, while this is interesting in itself, it made the analysis difficult, since the third category could not be said to have the same expected frequency as the other two (ignoring the residue of 'don't know' responses). The results are set out at Table 6.4.5.

	SELF	OTHER	EITHER		SELF	OTHER	EITHER
1. <u>must</u> ₁	32	6		5. <u>have to</u>	17	17	5
2. <u>must</u> ₂	28	4	7	6. <u>will have to</u>	22	15	1
3. <u>will need to</u>	29	5	2	7. <u>have got to</u>	21	15	3
4. <u>should</u>	26	13	1	8. <u>need to</u>	22	14	2

Table 6.4.5: Location of deontic source: eight necessity items

If we discard the 'either' category we can use the binomial test to test the difference between 'self' and 'other'. The first four items show a significant²⁵ judgement of 'self', and the second four items show no significant preference for either 'self' or 'other'. We would have expected these results for must and should (internal deontic source) and have (got) to (indeterminate between internal and external deontic source) though it must be said that it was only the oldest children whose judgements fully captured the indeterminacy.

The puzzle in these results is the difference between the judgements on will need to and need to. A close look at the data reveals that if we excluded the P7 judgements, need to would also have come up as self-determined. As it is, the shift from 'self' to 'other' between the items is significant (binomial: $N=11$, $p=0.006$). I think that there are two observations to be made here, following from the fact that the necessity of need to is supposed to be experienced as an inner compulsion due to objective forces (on Perkins' (1980) account). If this account is correct then we would expect the 'self' judgement to predominate unless the objective forces can be identified as specifically determining the compulsion. Hence for the oldest children I'll need to get a new dress for my holiday would signify a realisation that my current wardrobe is inadequate, whereas for I need to invite my cousin to my birthday party familial pressure towards cordial relations could perhaps be identified as the deontic source, and indeed justifications for the actuality implications show that this was salient in their judgements.

Why then did the younger children judge 'self' for both these items? I would see this as part of the more general tendency of the children as perhaps seeing the adult speaker as unduly self-determining. In seeking to objectify the task - by not asking children to judge what other children say lest their pragmatic expectations colour what are intended to be linguistic judgements - I have perhaps set up a situation which stretches the child's capacity to decentre. If the child cannot make a judgement about the deontic source of words, then he has to make a choice about what he thinks dictates adult actions. What is perhaps pertinent in this regard is who children would suggest as deontic source when they respond 'other'. The youngest children were most likely to say "her mommy". When I reminded them that the speaker (Morag) was a researcher like myself and asked whether they thought

my mother told me to do things, they were not very sure whether she would or not. This suggests that they don't have a very clear idea about the determining forces in an adult's life.

It is difficult to know whether the children were focussing on the modal expressions per se, although the trend of the judgements suggests that this was at least partly the case. Perhaps the strongest clue would be the type of justifications they gave for the implication judgements, which they had given immediately before in the task. (And we turn to a consideration of these immediately below). Certainly we do know that the P5 and P7 children are capable of articulating the different loci of responsibility, which they did in justifications on the Synonymy task, and also in this task, when called upon to compare modals in terms of sureness. For example, one P7 child said "for must, she hasn't been told, but have to, some other person may have told her".

(c) Justifications for the implication judgements

After the children had given their implication judgements they were simply asked "Why do you say she will/might etc?" to see whether they could justify their answer in some - totally unconstrained - way. The results were coded into what seemed to be reasonably discrete types of responses. The data is that for the eight necessity items²⁶.

1. The ubiquitous 'Don't know'.
2. Pragmatic responses of reason or purpose.
For example, "Maybe her dresses were too small for her"; "Dogs need to have a lot of fresh air"; "She might be going out and they might be coming to her house".
3. Necessity: where the child says "she needs to" or "she has to", and this is indeterminate between referring to the linguistic form used or to the pragmatic necessity itself.
4. Responses referring to the form: "because she says she has to", for example.
5. Referring to the meaning of the modal: "she says 'I've got to', it means that someone told her that she had to".

The distribution of these types of responses with age is shown at Figure 6.4.1 below.

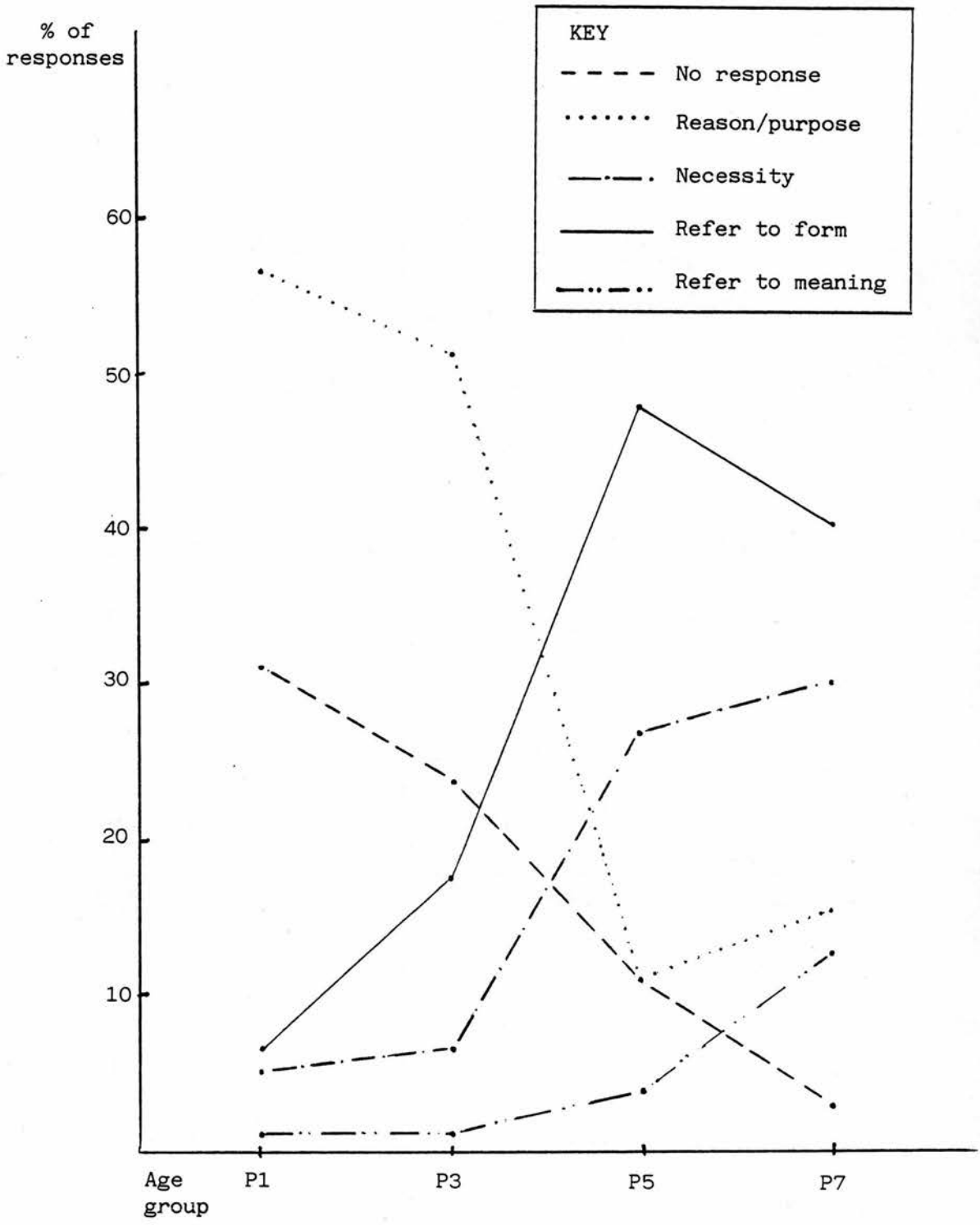


Figure 6.4.1: Types of justification on eight necessity items

It will be clear that two types of response 'don't know' and 'pragmatic: reason or purpose' are predominant in the two younger groups but fall away sharply with age, though the latter still account for 15% of the responses at P7 level. Three types of response 'necessity', 'form' and 'meaning' start at a low level with the younger children but increase at P5 and P7. This increase is sharpest with 'refer to form' responses, which peaks at P5, falling away slightly from 47.5 to 40% at P7. This difference can be accounted for by a comparable rise in definitional (type 5) responses, which nevertheless remains at a low level of 12.5%. The principal shift between types of response seems to occur between P3 and P5.

It seems that the younger children justify their answers by using the whole context of the utterance and relating this to their knowledge of what would be pragmatically likely in such a situation. Justifications of this type would seem to imply either that the children are unaware that the focus of the task is about word meaning or, if they are aware that this is so, they may have made the initial judgement on these grounds but they cannot justify their judgements in these terms.

The 'necessity' justification, the second most common for the older children, shows a much narrower focus on the form which is at issue, rather than the situation described in the sentence. Dare one speak of 'disembedding' the necessity from its context? Certainly the children might be seen to be operating with some kind of rule of inference such as "If she has to/needs to/must do X, she will/may do it".

The predominant response of the older groups was to refer to the form: this kind of response may well not differ greatly from the one described immediately above, except that the child is making explicit reference to the linguistic form embodying the necessity. The child is certainly signifying that he recognises the focus of the question is on the form: after all the question was something like "If she says she has to, etc., does that mean that ...?" What is significant is that comparatively few children went on to give some kind of definition (response 5), although we have grounds for believing (from the justifications on the Synonymy Task) that they would be perfectly capable of doing so. It was because they did not perceive the dimensions of the question to demand such a response.

An interesting parallel to these results is found in a study by Berthoud-Papandropoulou (1982) in which children were asked to justify comprehension judgements of hypothetical and counterfactual (French) conditional sentences. She classified the children's justifications as either extralinguistic, referring to properties of the objects or of the persons in the scenario, or metalinguistic, referring explicitly to the test utterance. Extralinguistic arguments were mostly produced by 4-5 year olds, and metalinguistic arguments were mainly produced by subjects of 7 years and above. This seems to parallel our data, albeit slightly more precocious. There are also intermediary arguments which Papandropoulou terms 'intralinguistic' which remain within the linguistic material and do not appeal to extralinguistic facts: perhaps it would be possible to ally this category with our own 'necessity' category which has equivalent constraints. What is significant about these parallel findings is that perhaps children would be predisposed to making these kinds of judgements relatively independently of the particular linguistic constraints of the task: in other words, children up to about 7 years might be seen as attempting to 'embed' in context a question: which older children treat as 'disembedded', to use Margaret Donaldson's (1978) terms. What would be interesting to determine is whether, even if pushed, these younger children would still treat questions of meaning as if they only involved pragmatic inference (in its loosest sense). This is an important question, and one to which we return in the following chapter.

It would not be easy, nor probably fair to try to derive a competence measure on this task, since even the reason/purpose category is most often perfectly appropriate as a justification, and there can be no neat dichotomy of pragmatic versus linguistic responses because of the intermediate category. However, it was seen on Figure 6.3.1 that there is a definite shift in the responses between P3 and P5. A score for each child was derived as follows:

Don't know	- 0	Refer to form	- 3
Reason/purpose	- 1	Refer to meaning	- 4
Necessity	- 2		

This system yielded a score range of 0-32, and a comparison between the adjacent age groups was made, which is presented at Table 6.4.6.

Age groups	\bar{X} Score Younger	\bar{X} Score Older	U	p
P1 vs P3	7.1	10.1	28	n.s.
P3 vs P5	10.1	18.6	8	.001
P5 vs P7	18.6	19.2	44.5	n.s.

Table 6.4.6: Comparison of task scores on eight justifications

There was no significant difference between P1 and P3, because as we saw, they showed a similar preponderance of 'don't know' and 'reason/purpose' responses. The shift between P3 and P5 is significant, as predicted, but no significant difference between P5 and P7. The reason for this is that the P7 children did not produce vastly more 'definitional' responses, and we know from our Synonymy data that real differences would lie between 9 and 11 year olds in the adequacy of these responses.

The real interest in this analysis lies in the shift of the nature of unstructured justifications. The change may be due to the effects of increased literacy, including simple comprehension exercises, leading to an expectation on the part of the older children, of the type of response which would be expected in an English language exercise.

6.4.4 Summary of Conclusions

We found that children from about P3 began to give the predicted judgements about the actuality implications of necessity forms, but these judgements were seldom highly significant within-groups, except for HAVE GOT TO (strong implication) and SHOULD (weak implication). A refinement in the method might yield a clearer picture, but we are satisfied that there is an effect there, and the ordering in terms of strength as follows was obtained $\left\{ \begin{array}{c} \text{HAVE (GOT) TO} \\ \text{MUST} \end{array} \right\} > \text{NEED} > \text{WILL NEED} > \text{SHOULD}$. As predicted was willing was seen as having a weak implication, but would seen as not significantly strong. The meaning of should've and shouldn't have was readily understood, but ought to have and oughtn't to have were a little more difficult. It is hypothesised that the amount of contextual detail specified may influence the judgement.

Must and should were seen to have an internal locus of compulsion, with have (got) to indeterminate and (will) need to was discussed as possibly being contextually determined. The younger children did not

seem to have a very clear idea about what or who were the primary motivators in the adult speaker's life.

There was a strong developmental shift in the kind of justifications the children provided for their implication judgements. The two younger groups were more likely to give pragmatic reasons, i.e. in terms of reason or purpose, whereas the older children were more likely to refer to the necessity per se, or refer to the linguistic form, or refer explicitly to the meaning of the form. There would appear to be parallel results in the literature, and it would be interesting to establish the roots of this tendency, whether these spontaneous meta-linguistic judgements are a simple reflection of increasing literacy (or whether they facilitate the literacy).

After deriving subject scores from different types of responses, it was found that there was no significant difference between P1 and P3, nor between P5 and P7, but there was a reflection of the shift in response types with a significant difference in scores between P3 and P5.

This concludes the present chapter. An integration of the results of all the experimental tasks will be attempted in the final chapter, where we will also try to assess the relevance of our case-study data.

CHAPTER SEVEN: SOME ISSUES RELATING
TO CHILDREN'S USE AND UNDERSTANDING
OF MODAL EXPRESSIONS

The concern of this chapter is to explore a number of issues raised explicitly or implicitly in the preceding chapters. It is not intended to be a simple reiteration of the principal findings, for which the reader is referred to the final sections in Chapters 4, 5 and 6.

We shall want to assess the fruitfulness of the guiding considerations of the research, presented at 2.6. Briefly, these are as follows:

(i) We needed an adequate working model on which to base our description of our observations, one which would lead to the insightful construction and interpretation of experimental tasks.

(ii) It was thought that the early school years might be a point of rapid development of the modal system, with the development of literacy and the practice of more formal reasoning skills.

(iii) A specific focus was to be on children's skills on language tasks involving modal expressions. The relationship of these skills to each other, to spontaneous production and their developmental pattern in relation to other language skills would seem to be of interest.

These three general issues will serve to structure the discussion which follows.

The model presented at Chapter Three is largely based on Palmer's (1979) work. The different kinds of modality which are now generally recognised. i.e. epistemic, dynamic and discourse-oriented (deontic) may be distinguished on philosophical-conceptual grounds (as Perkins does) or on syntactico-semantic grounds (as Palmer does). While I used Palmer's model since it was the most clearly articulated one available at the conception of the study, my sympathies would lie with an adequate 'basic meaning' approach, which articulates a long-held dictum of linguistics that all occurrences of one form share some meaning. It is the particular achievement of Perkins' (1980) work that he manages to show the relationship of the basic meaning to the different kinds of modality. The productivity of his work highlights the relative barrenness of Ehrman's (1966) approach, even though her work is corpus-based, since she fails to distinguish the different kinds of modality. The value of Haegeman's work is evident in her

careful analysis of the components of the core meaning of WILL, i.e. 'nonfactuality', 'actuality' and 'conditionality'. It will be interesting to see how Perkins' recent published work is appraised by linguists.

However, having stated in principle that a particular form may express different meanings (e.g. MUST may be epistemic, dynamic or discourse-oriented) it is still important to identify such meanings as they occur. The question may reasonably be asked as to when these particular meanings are manifested. Do we have reason to believe that one kind of modality is any more difficult than the others? (We address the related question of whether the children consciously discriminate between different realisations of the same form, below.)

We have seen that discourse-oriented and dynamic uses of the modals (principally CAN and WILL) are the first to appear. This is not unexpected in terms of what we know about the early nature of communication as being principally interactional and action-oriented. An implicit assumption in the literature, is, I think, that epistemic modality, because it deals with third-order entities (i.e. propositions) is somehow more difficult, or psychologically more complex than dynamic modality, which deals with second-order entities (i.e. events, cf 2.4).

However, it seems to me that we should not view epistemic modality as a unitary phenomenon. There are aspects of its expression which we may expect to be manifested reasonably early in childhood. There are three distinctions which could be drawn here which help us to separate the different aspects:

- (i) 'practical' versus 'theoretical' possibility and necessity,
- (ii) 'subjective' versus 'objective' expressions of possibility and necessity, and
- (iii) de re versus de dicto modalities.

The first distinction which Leech (1969) draws, elucidates the pragmatic functions of epistemic and dynamic modality:

- (a) Practical possibility: epistemic, e.g. The children may play games¹ (= possible that).
- (b) Theoretical possibility: dynamic, e.g. The children can play games (= possible for).

The significance of the distinction which Leech draws is that it

points to the fact that epistemic modality can be used for making practical predictions ², drawing conclusions in particular situations. In contrast, to state a 'circumstantial' possibility is not necessarily to place it in a particular context. (The conventional implication use as a suggestion would perform this function). If the distinction which Leech makes is valid we should not be surprised to find statements of epistemic possibility manifested as early as statements of circumstantial (dynamic) possibility. In fact the latter are far more common than the former in our case study data, and furthermore epistemic expressions only constituted between 2-10% of all modal expressions. It is possible that the dynamic circumstantial sense is developmentally prior to the epistemic sense because of its close relationship with the 'ability' sense, which is salient in early language.

The distinction between 'subjective' and 'objective' expression has been emphasised by Perkins (ibid), who has pointed out (at 2.5) that expressions such as It's possible that, possibly 'objectify' the notion of possibility inherent in 'an event being relative to a circumstance' (dynamic CAN), for example. The first expressions make explicit the notion of possibility, and may be involved in the linguistic expression of alethic modality - where the inferences relate to objective verifiability. These lexical expressions occur very late in development, and then only in specific discourses.

Another distinction which has been drawn, principally in philosophical work (van Wright, 1951a, Le Bonniec, 1980) raises an interesting point about linguistic theory and may further account for the developmental pattern. It seems that the position of the word marking the modality in the sentence is of some importance, since a modification of the scope of the modality involves a modification of the meaning. Le Bonniec (ibid, p. 16) presents the following examples:

- (a) John may catch his train.
- (b) It may be that John will catch his train.

In (a) the 'modality of possibility' relates to the event catch his train; John is responsible for the outcome. The modality is de re. In (b) the 'modality' relates to the truth value of the whole proposition John will catch his train. The speaker assigns the "truth value" on the basis of available information. However, Le Bonniec goes on to say that natural language does not always distinguish clearly between these two types of modality. She does not say in what way this is so: if the distinction lies in the modal expression being

intra-complement or taking a that-complement, then we do have a formal means of identifying the two types³.

If this distinction can be maintained (and it seems intuitively to be satisfactory) then a number of possibilities follow. First it would be interesting to see at which point the de dicto constructions emerge: I would predict that these would be somewhat after de re constructions. If de re modality is to do with events then we would expect these to be somewhat earlier than those with propositions. The epistemic uses of the auxiliary modals by our case-study children were all de re. I had no instances of children saying It might be that..., It must be that..., for example. However, if we consider epistemic modal adverbs used as sentential modifiers as other examples of de dicto modality, then we do have instances, particularly from Timothy. For example, You know, pussy doesn't like being in the car, probably (1.5).

Secondly, the identification of these two types of modality appears to have invalidated a 'sacred' distinction in linguistic theorizing, in which dynamic modality is supposed to be concerned with events⁴, epistemic modality with propositions. I think that the principal reason for linguists' assuming that epistemic modality is inevitably to do with propositions is that the usual practice of presenting paraphrases to illustrate the meaning yields these objectified, de dicto constructions. For example, MAY = It is possible that, MUST = The only possible conclusion is that (Palmer, *ibid*; cf also Leech and Coates, 1980).

Linguistic epistemic notions⁵ are psychologically interesting insofar as they are intrinsic to the making of inferences, however informal, e.g. It's raining, so we might not go for a picnic after all. Conversely, we might want to argue that the ability to make inferences is a precondition of using epistemic expressions. However, we would have to admit that very often the inference is drawn implicitly - as not all epistemic expressions occur in conditional sentences, for example.

With regards to the other kinds of modality, it seems fairly clear that further analysis is required of the linguistic notion of discourse-oriented modality. We noted that, in speech-act terms, discourse-oriented expressions could be regarded as a subclass of commissives and declaratives (cf 2.2). However, an illuminating

framework which could account for the kinds of functions under these general types would be a contribution. The following list is an attempt to give an ordering highlighting the gradience of the functions:

- (1) Rules and Regulations
- (2) Reporting rules and regulations and agreeing with them
- (3) Reporting rules and regulations
- (4) Commands (imperatives) and imposing obligations
- (5) Requests and suggestions for action
- (6) Offer of action
- (7) Asking permission/giving permission
- (8) Reporting permission⁶.

We need a conceptual analysis of these kinds of acts, as well as a linguistic analysis of the means of expressing these functions, for example, the relationship between the direct and indirect speech acts used.

A question of some interest would be when we could say that the child's modal expressions constituted a system - of semantic contrasts. This is not the same question as when the endpoint of development has been reached, but rather, when critical contrasts have been made. By this I mean, when the kinds of modality (i.e. epistemic, discourse-oriented and dynamic) as well as the degrees (i.e. possibility, necessity and 'prediction' (i.e. WILL)) have been distinguished. In looking at Wells' data (which was coded using these distinctions) and my own, it seems that this point might occur somewhere between 3½-4½ years, although it may be somewhat later. At this point the child has the basic structures of his modal system and may apply these to ever more sophisticated contents (as his knowledge of the world increases). He may begin to make more complex inferences, and later even use his language to express alethic or hypothetico-deductive concepts.

Our case-study children (Chapter Four) showed a remarkable adeptness with the intricacies of the modal system, and perhaps because of a degree of precocity, did not show any discernible development over the period of 15-18 months during which I observed them. Although I preferred to talk in terms of individual patterns of usage, for example, Janet using principally discourse-oriented expressions and Simon, epistemic and dynamic expressions, it would perhaps have been possible to draw a more general conclusion to talk in terms of the

girls being more preoccupied with roles and interactional dynamics than the boys. I would not want to draw any larger conclusions about sex roles, however.

Apart from the fact that the children seemed to be using the resources of their modal systems in different ways, it was also the case that the younger children had characteristic uses which seemed to verge on the idiosyncratic. I am referring for example to Janet's 'idiosyncratic regulational' uses, in which she imposes on the co-participants in a game an obligation which she would have them believe to be externally motivated (but which she decides on, on the spur of the moment). For example, (a) You've gotta have your cards turned this way (2:32). in a card-matching game. A related form I called 'commentative' occurs as Janet is 'explaining' why her paper doll is dressing as she is: for example, (b) She's gotta wear a hat and she's gotta wear this one (2:48-9). It may be that these uses should simply have been called (a) discourse-oriented necessity and (b) dynamic necessity, but this would have been to lose sight of the particular childish functions they were performing.

One interesting possibility is that the child's use of modal expressions may provide an informal index of his characteristic personality and interest traits which we would normally refer to with nontechnical but related expressions. Janet and Aileen used a high proportion of discourse-oriented obligational meanings, and we could have described them both as bossy children, although this is less obvious with Aileen since she would be quite deferential to adults. On the other hand Simon's language showed a preponderance of epistemic forms: he is an unassertive and dependent child, given to dreamy speculation. Tim too is interested in hypothetical possibilities (in games) but he is also a very polite child: both these aspects are reflected in his modal system (cf 4.3.1 & 2).

The children's general pattern of usage fitted in with some predictions from the literature. For example, with epistemic modality, secondary modal auxiliaries are used less than primary ones, and the use of lexical expressions was slightly higher with the older children, Aileen and Timothy. The interesting predictions are, once again, about epistemic modality. The other kinds of meaning do not seem to be intrinsically difficult - except perhaps for example (a) habitual, (b) insistence and (c) 'timeless truth' uses of WILL, e.g.

- (a) She would try to get the early bus home.
- (b) She will play with my expensive computer game.
- (c) Cats will scratch when they are frightened.

All these meanings relate to particular kinds of experience. It does not seem to me that children are apt to characterise people in terms of their habits. However, the notion of insistence must be familiar - since they themselves are continually manifesting this infuriating capacity! They must also be continually learning about 'timeless truths' (e.g. My toys will float on my bathwater, My knees will get sore when I fall) but it is the expression of these which still needs to develop. The problem is probably one of register - these expressions of WILL would seem to be more formal than the parallel childish renderings of these concepts. However, we do not have data on the frequency of occurrence of these forms in adult-child interaction so we cannot say with assurance that children are not exposed to these uses. The parallel childish expressions would be:

- (a) She used to try to get the early bus home.
- (b) (i) She won't stop playing with my game!
 (ii) She keeps on playing with my game!
 (iii) She always has to play with my game!⁷
- (c) Cats scratch when they are frightened.

It will be remembered that my case-study analysis was only of the utterances which contained modal expressions used by the children. Had we considered their total range of utterances, it would have been interesting to determine what functional load is being carried by modal expressions at this age. For example, in discourse-oriented modality, we have various forms of directives - imposing obligations, etc. It would have been of interest to determine the extent to which these same functions are carried by unmodalised utterances. We know from Wells' (ibid) work that adult language to children contains a higher proportion of modalised utterances than that of children. It would be interesting to establish where the differences between adults and children lay in terms of the functions that the modals are performing. (Wells does not give an analysis of the adult modal meanings - simply the forms.) It may be that modal expressions are much used in adult-child interaction because adults are concerned with the control of the child and perhaps also with explanations to children. It is quite

plausible that adult-adult language would carry quite different functions.

In Chapters 2 and 4 it was noted that Perkins (ibid) had data from children at 6, 8, 10 and 12 years, but he largely confined his description to the form and not to their various uses. Although a core-meaning approach (cf 2.4) may be elegant in accounting for the semantic contrasts of the modal system, I have argued that we are also interested in the various realisations of the core-meanings. It seems that children, when talking to each other, in a specific informal context such as Perkins' may use a narrower range of expressions than they would when talking to adults, for example. The necessity for sampling a wide range of behaviours is indicated, something which I think was achieved in my own observational work.

At Section 2.5 we look briefly at "explanations" of modal development: at 4.4 I added my own brief theory. It seems that the acquisition of modal expressions follows general principles of the relation between developing forms and meanings. When a form is acquired it is most likely to express a previously given function; when a new function appears it is commonly expressed by an old form. Old functions (previously expressed by some other forms) are also attached to old forms (previously used to express some other function) (Kuczaj, 1982).

As for the functions or meanings themselves over the course of middle childhood, they are mirrors of the child's developing social and cognitive capacities. The child's initial concern with his own actions is followed by a less agent-oriented awareness of potential or constraint in others. After this comes a more detached consideration of the likelihood of states of affairs and events and the child is able to draw explicit inferences about events not directly observed.

The modal system, because it is concerned with the expression of social, circumstantial and rational dimensions of our experience, serves as a particularly clear reflection of the concerns of the developing child.

In the description of the working model (Chapter 3) we saw that there appears to be some change in progress in the English modal system as a whole, in which a number of functions are beginning to be expressed by other forms (e.g. MAY - CAN, MUST - HAVE TO, SHALL - WILL). We tried to make reference to evidence of these processes during the discussion

of the case-study data and task results, but it would probably be useful to make a summary statement here.

The first pair of forms WILL and SHALL were not equally used. WILL was the second most used form (19.7% of all expressions) and SHALL had the ordinal rank of twelve (2.5%). The case study children all used SHALL in offers (the function in which it is principally supposed to survive) although three of them also used the Scottish form Will I ...? The use of SHALL as an undertaking is only attested with one child - once again WILL (not specifically a Scottish usage) is used. In the Construction Changing Task, it seemed to be very easy to form questions with WILL, but for the SHALL item children occasionally substituted WILL and substituted won't in the negation task. The WILL of 'insistence', very rare in spontaneous data with the case-study children, was sometimes inaccurately paraphrased by SHALL and similarly with 'habitual' WILL which had P3 children especially responding with SHALL. The younger children seemed to be aware of the formal parallels between WILL and SHALL but were not aware that they do not constitute paraphrases in every use.

Another pair of interest is SHOULD and OUGHT TO; the first form was used quite widely (7th most frequent form -4.33% of the total), in its epistemic, dynamic and discourse-oriented senses. However, more than half the instances were accounted for by Simon, using SHOULD to indicate extremely 'weak' dynamic necessity. OUGHT TO does not occur at all in the case-study data. The differences in the familiarity of the forms showed up in the Construction Changing Task where SHOULD was the easiest form to construct a question with, and OUGHT the most difficult (with rather immature redundancy type responses being given, e.g. Should you ought to be ashamed? Have you ought to be ashamed?) Negating a sentence containing SHOULD was easy even at 5 years, but once again OUGHT TO proved more difficult: there was some replacement by shouldn't here. When asked to give paraphrases for should and should've there was some realisation by the oldest children that the most appropriate forms are ought and ought to have. On the Actuality task four of the youngest children didn't know what oughtn't to have meant at all.

There seems to be some evidence that HAVE (GOT) TO is encroaching on the territory of MUST. This is thought to be the case in Scottish

English, but developmental data from English children (in the literature) as well as our own indicates that this may be a more general process than previously supposed. There were substantially more cases of HAVE TO and HAVE GOT TO (2.85% and 2.65% respectively) than MUST (0.59%), which seemed principally to be represented in epistemic uses. (MUST was the rarest of the classic auxiliary modals in the data.) HAVE TO was principally used dynamically, and HAVE GOT TO principally in discourse-oriented uses. In the Paraphrase Task, HAVE TO is offered as a paraphrase for MUST, but the older children in the Synonymy Task also offered HAVE GOT TO in their justifications. For HAVE TO, MUST is offered, but it is significant that few reciprocal paraphrases (HAVE TO = MUST and MUST = HAVE TO) were given. It is interesting that HAVE TO is offered as a paraphrase for HAVE GOT TO on the Paraphrase and Synonymy Tasks, showing that the children treated these as distinct forms. On the Actuality Task, when absolute judgements were required, HAVE GOT TO was seen as stronger than HAVE TO in its actuality implication. However, comparison between the forms showed HAVE TO, HAVE GOT TO and MUST as equally strong in their implications (and stronger than NEED).

Similarly, we might suppose that MAY is retreating in the face of MIGHT (except in the discourse-oriented uses, where it is succumbing to CAN). There were slightly more instances of MIGHT than MAY but a low overall proportion (1.25% vs 0.7%). Epistemic possibility was principally expressed by MIGHT (with only a couple of instances of MAY and could). The children realised that these forms used epistemically do not regularly enter into question forms, but were unable (or unwilling) to suggest more plausible forms, e.g. Do you think you might? An interesting way of negating might and may was to replace them by won't, which is a solution which seems to make pragmatic sense. On the Paraphrase task and Synonymy justifications, MAY was widely replaced by MIGHT. However, the converse was not true for MIGHT which was usually replaced by could or MAY .

An integration of the findings of the experimental studies will be attempted, but before we do this, a few remarks about the particular findings are in order.

The first study which was carried out was the Construction Changing Tasks. In order of increasing difficulty, these tasks were Tense Sequencing, Negation and Question formation. This last task was the one which showed the clearest developmental pattern - even

though my children did less well than Diana Major's (1974) subjects. There was a peaking of formal-type responses at P3, while the older children seemed more able to take account of the semantic constraints of the task. For example, for the item: You are to come to school the P3's would give Am I...? uniformly, while the oldest children also gave Should I...? It was shown that the relative familiarity of forms would have an effect on children's facility with them (we mentioned the examples of SHOULD and OUGHT TO above). Performance variability on the 'rarer' uses seemed to be neutralised by 9 years. I would want to claim that the early differences in performance are evidence that children can identify uses of modals with which they are not familiar - they do not treat all uses uniformly (for example, there was greater variability with the 'command' use of CAN, than the 'ability' use). Later they come to treat all uses appropriately.

The structure of the Construction Changing Tasks (Chapter Five) was to get the child to set up correspondence relationships between pairs of sentences, something which the younger child would probably not have done consciously before. However, it is possible that the older children would have done comparable written exercises at school (I certainly know of exercises of changing sentences into the 'past tense' being given to P7 children).

As with the first tasks, the Acceptability Task seemed to be a little more difficult than similar tasks reported in the literature. However, tasks involving judging the deviance arising from violations of selection restrictions (which could be seen to involve knowledge of the world) would seem to be intuitively easier than judgements of deviance arising from strict subcategorisation rule violation. From spontaneous remarks made in the test situation it would appear that 5- and 6 year old children conceived of the deviance in terms of 'not making sense'. This is a finding which was predicted from the literature. What is not clear in situations such as ours is whether the children are able to conceive the syntactic factors involved but are unable to express them linguistically. A more radical explanation would be that while syntactic principles may be governing the children's language, there may initially be no concomitant conceptualisation of these principles. The syntactic knowledge would be constructed - with the development of literacy - long after the language which tacitly fits these principles is in use.

However, it will be remembered that our children were not asked to give justifications on this task, but were merely asked to make corrections, a skill which might be supposed to be of a lower order. The children had to identify the source of the deviance and then decide how to transform the sentence into an acceptable one, fitting very closely in form to the 'test' sentence. While the 7 year old children were fairly competent at making the initial judgement (showing presumably that they knew that a single rule was being broken) they did not manage to preserve the form of the test items in their corrections very well. A comparison with the performance on the Construction Changing tasks shows that making these corrections is more difficult to do than making simple transformations of sentences. Only the older children seemed to be able to manage the formal and semantic constraints simultaneously.

One final observation about this study is that while one rule was being broken in all the items, the results did not seem uniformly unacceptable. Perhaps this indicates that the rule is not as categorical as it seems. Much more linguistic analysis is required to establish the permissible combinations of kinds of modal meaning.

The third experimental task was the Paraphrase task (Chapter Six), in which the children were asked to give paraphrases of modal auxiliaries in sentences. Even the youngest children were able to attempt some of the items, but their level of appropriate paraphrases was quite low. The older children were better at the Task, but performance was nowhere near perfect even for the oldest children. The children's paraphrases did not yield a neat system (for example, MUST and HAVE TO were not used consistently as reciprocal paraphrases).

This task seemed to be the one which required the most active consideration of the modal system (apart from the older children's justifications on the Synonymy Task): the children would have to search the system for an alternative form which was related in terms of the kind of modality (e.g. epistemic, dynamic), degree of modality (e.g. possibility, necessity) and perhaps strength of actuality implication.

There would be a slightly different basis for making the synonymy judgements (Chapter Six): here, when two forms are presented the child would have to make a comparison between the kinds and degree of modality, etc., a process more passive than seeking a paraphrase. One process children could use to help decide on the relative meanings

would be to contextualise the sentences, that is, think of a situation in which these rather bold sentences might be said. We can't be sure which path the child would be taking - the nature of the child's justification may provide a clue (but may of course be post-hoc reasoning). For example, Timothy (one of our case-study children) gave this answer when presented with:

1(a) The door may be shut. (b) The door will be shut.

(a) They can't hear any squeaking or any draughts but they're pretty far so they wouldn't hear any anyway - the door could be shut.

(b) If they're pretty near it and they don't hear any winds or squeaking.

It is when children are able to give kind-appropriated explanations that we have the strongest evidence of the psychological reality of the epistemic/non-epistemic (or root) distinction. For example, Timothy is able to say when the test pair is:

2(a) I will shut the door. (b) I'm willing to shut the door.

that will means that "she will shut the door if someone leaves it open".

This discourse-oriented sense of WILL is set against the epistemic sense in the previous example (1b). It seems that 1(a) would set the context for an epistemic reading⁸, where 2(b) would set the context for a discourse-oriented reading.

The different bases which children gave for their justifications also give credence to the psycholinguistic separation of the degree of modality as well as the actuality implications. However, it should be pointed out that the justifications given were not always wholly accurate. For example SHOULD had explanations given in terms of both definite and indefinite implications of actuality, and SHOULD was also given as a paraphrase for MUST (whereas they have different actuality implications).

In point of fact, more accurate judgements were made on the Actuality Task (by different children), and the reason is probably that the specific focus was initially required only on a single item (although pairs of items were also afterwards compared). Here for example, MUST was judged to be "more sure" than SHOULD.

There were two striking findings from the Actuality Task. The first was that the children seemed to make accurate judgements about

meaning implications from a relatively early age. To this extent it seemed that this task was easier than both the Paraphrase and Synonymy Tasks. It would be simpler than the Synonymy Task since as we pointed out, only one form was focussed on at a time. It was easier than the Paraphrase task insofar as the range of possible responses was provided.

The second very interesting finding was that the judgements on the task were given very different justifications. The younger children gave pragmatic reasons for their answers: they used the context of the utterance and their knowledge of what would be pragmatically likely in such a situation. (Furthermore they were not always very accurate about the determinants of an adult woman's actions.) I suggested that they might have made their initial judgements on grounds of word meaning, but that they could not justify their judgements in these terms.

These results corroborate findings in the literature, i.e. those of Gleitman et al (1972), Karmiloff-Smith (1979a), Hakes et al (1980) and Berthoud-Papandropolou (1982). This suggests that we are dealing with a generalised linguistic phenomenon: that while children may use forms appropriately, it is only some time later that they can explain this usage, and it is not until about 9 years that children will cast their explanations in specifically linguistic terms. We found that the case study children were using expressions perfectly appropriately of which only 9 year old children were able to give very accurate explanations or paraphrases. The fact that my case study children showed little difference in spontaneous usage yet the older children were more mature in their responses on some of the tasks (see Appendix Three) is further confirmatory evidence for this phenomenon.

Although it would not be possible to make a statistically-based statement about the relationship between the tasks, I would want informally to claim the tasks could be ordered in terms of increasing difficulty as follows: Construction Changing < Actuality < Acceptability < Synonymy < Paraphrase. This claim is based on a conceptual analysis of the structure of the tasks (which has been presented informally during the course of the previous discussion) as well as a consideration of the results of the tasks.

It must be said that none of the tasks was very easy. For the three tasks on which the children were given scores, if we take the criterion of success as gaining 75% (of correct/appropriate responses),

we find the following picture, presented at Table 7.1.

Age	Acceptability	Paraphrase	Synonymy
P1	0	0	-
2	1	0	1
3	2	2	3
5	4	3	4
7	8*	7	10**

*Significantly large proportion of group reached criterion - binomial test.

* = .02

** = .01

Table 7.1: Number of children to reach criterion at different ages

For these more difficult tasks there seems to be a slow regular increment in the number of competent performers - and then a large jump between P5 and P7. The table also indicates that it was difficult even at P7 to give accurate paraphrases, that some children were still not able to fully control the formal and semantic constraints of the Acceptability Task, and that the Synonymy judgements were highly accurate. The large change between P5 and P7 was also seen in the developing capacity to give accurate justifications on the Synonymy Task.

The impression was gained through all the tasks that there was not much difference in performance between the two youngest groups of children: the only intriguing difference occurred on the Synonymy Task where the youngest children seemed to have no grasp of the notion of synonymy at all, but where the P2 children seemed to have some preliminary notion.

The pivotal age seemed to be at about seven years (P3) where the children are coming to realise what is really required of them on these tasks, although the responses may not be consistently mature. Children at this age were of course very good at the Construction Changing Task. However, it is only at P5 that consistently mature responses begin to emerge and are consolidated.

It might be argued that because our tasks all contain modal expressions, it's not surprising that we have parallel patterns of results. However, the fact that there are similar findings to mine in

the literature suggests that there is a more general language process operative here. In Chapter Two (2.5) we cited Hakes et al (ibid) as saying that metalinguistic competence is the major achievement of middle childhood: they did a scalogram analysis of the results of their different tasks and claim to have found a significant source of variance common to all the tasks. They claim this would be a unitary underlying capacity, i.e. metalinguistic ability. I would be happier viewing the metalinguistic ability as comprising a number of different skills⁹. The 'list' of metalinguistic abilities suggested by Clark (1978) (cf 2.5) would indicate that there are a number of distinct components to this capacity.

An interesting question involves the significance of the development of metalinguistic awareness in relation to the development of literacy. This question has been addressed by Tunmer and Bowey (1980) who try to show that different kinds of language awareness are implicated at different points in the reading acquisition process. For example, word awareness in whole word learning, phonological awareness in establishing grapheme-phoneme correspondences. They suggest that further research is still required to determine more about the relation between these abilities and learning to read, to determine whether these abilities may be facilitated by training and whether the training would transfer positively to reading.

Presumably if one trained metalinguistic abilities in children and found positive transfer to the learning of reading, this would provide some evidence of a causal relationship in a specific direction. However, I would also like to suggest that the continued practice of reading and writing skills may themselves facilitate metalinguistic abilities of a higher order. Of course, school lessons are very often designed, in the later years of primary school, to get the child to make explicit what he knows about language. For example, children may be asked to make sentences with a list of words, in order to show that they know what they mean. It may be that by the age of 9 years children have had considerable experience at making language forms and meanings explicit. It may be, too, that the older children recognised my tasks as "language" tasks and decided that it was appropriate to give answers that were as language-oriented as possible.

Mention must be made of the fact that in the study of cognitive

development, a broad notion of metacognition has recently been conceived (Flavell, 1977). This term refers to the child's increasing awareness of how he can control his own intellectual processes to develop potentially useful strategies in problem-solving tasks. It includes the following: metamemory, metalearning, meta-attention, metasocial cognition. An example from the study of metamemory would be that rehearsal does not come naturally to a child of five years. The child does not appear to realise that this would be a useful aid to remembering information. Indeed he does not appear to realise that he may need to make any specific effort to retain information (Harris, 1979).

There does not appear to be any research yet attempting to demonstrate empirically the relationship between metalinguistic and metacognitive abilities: it is unlikely that anything more than correlations will be established insofar as metacognitive and metalinguistic abilities both appear to emerge in middle to late childhood. It may be that the issue will have to be resolved on conceptual grounds.

It seems to me that we now have a substantial enough body of knowledge about children's usage and understanding of the linguistic modal system in order to attempt to establish the connections with the developing modal conceptual system. We would not expect to find that the semantic concepts and the cognitive concepts are identical. If I may draw an analogy with a classic developmental problem - that of conservation: if we can claim to have gained an appreciation of the child's understanding of terms like same, different, more and less, this does not mean that we have simultaneously gained access to the child's concept of conservation, which is only partially isomorphic with the linguistic concepts. The most obvious example here is with epistemic modality: epistemic logic is concerned with questions of knowledge and belief - von Wright's (1951a) terms were 'verified', 'undecided' and 'falsified'. At the cognitive level we want to know what the child understands in deciding whether something is verified, falsified or undecided: at the linguistic level we would want to know what the child understands when he uses terms like know, believe, think. It would be interesting to try to consider what relationship exists between these cognitive verbs expressing propositional attitudes and the epistemic modal auxiliaries, e.g. might, must. We might also want to try to relate children's use and understanding of dynamic circumstantial possibility terms like can and could with the 'pragmatic' modalities

outlined by Le Bonniec (1980). We may be addressing an instance of the more general problem of when children come to realise they are required to separate out their pragmatic knowledge from logical factors in a problem.

In conclusion, two points will bear restatement. First we have seen that aspects of language development continue well into middle and late childhood. Competence at spontaneous expression is followed with some small delay by related skills at the metalinguistic level. It seems to me that we can expect to find other aspects of linguistic competence which will show such gradual and prolonged development. The identification of these can only enrich the language curriculum in our schools, as we become sensitive to the enhancement of increasingly sophisticated skills in the child.

Finally, it seems that the study of modal expressions used and understood by children provides us with a rich source of information about the cognitive and social concerns of the developing child.

NOTES

Chapter One

1. We will be principally concerned with lexemes in our theoretical discussions, but will be referring in the experimental work to forms.

Chapter Two

1. This brief description is derived from Le Bonniec (1980).
2. It is not absolutely clear what is intended by the horizontal arrangement of the concepts. It seems to me that 'undecided' stands in some kind of correspondence relationship with both 'possible' and 'contingent'.
3. Lyons' approach to modality is largely semantic and conceptual, not tied to data in the same way as the more strictly linguistic approaches such as Palmer (ibid), hence its inclusion in this section.
4. Kenny adduces as further evidence for this claim the fact that the law of distribution ... i.e. if a disjunction is true in some possible world, then one of the disjuncts must be true in some possible world, would not hold for ability.
5. As Searle (1979) has remarked, the study of speech-acts seemed to lie on the side of the philosophy of language, where this discipline dealt with conceptual truths underlying language. However, in the 1970's linguists moved into this area. The reason for its inclusion in this section is that its contribution to the understanding of modality is indirect - it does not specifically address the issue - in comparison with the linguistic theories examined in the following section.
6. This central characteristic of deontic expressions is taken up at 2.4 and again in Chapter Three, passim.
7. However, modern logicians did not intend to build a model for natural thought in the first place.
8. The item pairs could arguably be represented as CAN, MAY, WILL. Here I treat them as separate forms.
9. Emphasis will also be for insistence, a special kind of volition, as in She will be late for early lectures.
10. It is possible for modals and catenatives to co-occur as in She might have to go. Where the two meanings are required, as for example, epistemic and dynamic, the quasi-modal is used. Nonstandard forms like might can are of course possible in some varieties of Scottish English. See Chapter Five: Acceptability Task for further discussion.
11. These are expressed by had to and be supposed to, respectively.
12. I shall not be discussing syntactic studies, for example Jenkins (1972) and Johannesson (1976), since the concerns of my research, where syntactic, are adequately covered by this brief résumé of the formal criteria.
13. Other matrix analyses include these by Twaddell (1965) and Bouma (1975).
14. I would take this statement as indicating that the speaker in using have to or must assumes that the event specified by the verb will actually take place. For a further discussion of these phenomena, see Chapter Six, the Actuality Task.

15. It is by principles like these that Leech hopes to reveal an underlying logical structure to the modal system.
16. One might say that one of the conditions for allowing an action is that that action itself is possible.
17. This term is changed to Factual in Leech's 1971 model, but I have chosen to retain the earlier term since it is more explanatory for the point I make here and also in Chapter Seven.
18. Boyd and Thorne claim that their work constitutes the explicit introduction of the terms 'speech act' and 'illocutionary force' into linguistic theory.
19. i.e. 'imperative' and 'necessity'.
20. Details of the kinds of modality are given in Chapter Three.
21. X is a variable which may represent the occurrence of an event under a dynamic or deontic interpretation and the truth of a proposition under an epistemic interpretation.
22. Explicitly subjective epistemic modality, in contrast, may be indicated with a modal lexical verb with first person subject, e.g. I think/believe/reckon he will go.
23. My own on-going observation of a 2 year old corroborates these findings: Timothy at 2:2 has only can't (used appropriately) and furthermore uses this form in place of don't as for example in I can't like it. This shows some analysis of the category of auxiliary, using the more meaningful can't to replace the semantically empty don't.
24. 'Constraint' would seem to be parallel to dynamic modality in Palmer's (ibid) system, along with 'Potential'.
25. 'Inference' and 'likelihood' seem compatible with epistemic modality.
26. The correct interpretation of the binomial test would yield only 7 significant preferences rather than the 31 they posit.
27. For example an inference made from I saw her put it under the box so it must be there would be very strong in its implication.
28. For example Leech and Coates (ibid) in analysing indeterminacy in the English modals, would have us consider CAN as a monosemous modal since all its uses (possibility, permission and ability) fall within the scope of two gradients. MAY would be polysemous because it has both an epistemic and a 'root' meaning (permission) and these meanings have clearcut boundaries on independent syntactic and semantic grounds.
29. Wells distinguishes between likelihood and inference (although he gives them both an epistemic paraphrase) where the latter is drawn explicitly in the context, e.g. (Doorbell rings) That could be John. He said he'd call.
30. Perkins makes here a standard error in Piagetian interpretation by confounding the technical and everyday senses of the term 'egocentrism'. It is perfectly possible to make explicit that one is able to take the other persons' view, i.e. to decentre even when using I.
31. It will be remembered that Perkin's data was derived from trios of children using Lego. Thus the co-operative aspect of language would be salient in a way in which it was not in any other more free observational data, e.g. from Wells.

32. Strictly speaking Major's work is concerned with language skills: but these are not the kind on which we focus now.
33. The following incident is now nearly apocryphal in the literature (Brown and Bellugi, 1964, p. 164).
 Experimenter: Adam which is right: 'two shoes' or 'two shoe'?
 Adam : Pop-goes-the-weasel!
34. It is possible that this is an aspect of language which is even beyond the reach of some adults.

Chapter Three

1. It is not my present task to be rebuilding any theory in highly detailed terms although insights for a new theory might arise from this work.
2. It will be remembered from 2.2 above that Palmer is using this term in the sense of Austin (1962) where performatives have no truth value, and are used to do something. I pointed out that the revised version of the theory dropped the performative-constative distinction, and that we might rather choose to regard deontic (=discourse-oriented) modals as instantiations of 'directives' and 'commissives' (Searle's 1979 terms).
3. There seem to be at least the following points which could be drawn on a continuum according to Palmer (p. 150)
 - (i) Giving permission, laying obligation
 - (ii) Reporting rules and agreeing with them
 - (iii) Reporting rules
 - (iv) Saying what is possible or necessary.
 I have found it useful to make more distinctions towards the top end of the continuum in our discussion in Chapter Four.
4. It should be clear that I am not concerning myself with that other kind of discourse, i.e. text or treatise, but am referring principally to interaction.
5. We will see, however, that it does remain subject-oriented in its syntactic characteristics, see a little further in this discussion.
6. See Appendix I for a further defence of this position; a carefully articulated argument put forward by Haegeman (ibid).
7. I have chosen this term as more transparent than Palmer's 'neutral'. We describe these dynamic uses in greater detail below.
8. This includes subject-oriented volitional WILL, which is never voice-neutral. CAN of ability does not have the event negated.
9. Haegeman (p. 78) points out that most workers would want to allow the epistemic reading where there is a reference to a single event in the future, e.g. You will feel better in the morning. I have chosen to consign this use to 'futurity' WILL. There is more on this issue in both the following section and following chapter.
10. Palmer (p. 140-1) in his discussion of unreal present and past conditionals would and would have offers examples which seem no different to those given as epistemic, e.g. Epistemic - How long

10. (cont'd.) would that be (p. 48) versus 'unreal' - That punch would normally put a man down (p. 141). I do, however, attempt to maintain what would be a fine distinction by retaining judgements as epistemic, consigning everything else to 'unreal'. See further details in Section Five.
11. But mentioned briefly by Quirk and Greenbaum (1973) whose account differs slightly from that of Perkins.
12. Lyons accounts for the distinction in terms of the tripartite analysis of speech-act theory. Subjective epistemic modality can be accounted for in terms of the speaker's qualification of the I-say-so (neustic) component of his utterance. Objectively modalised utterances can be described as having an unqualified I-say-so component, but an it-is-so (trophic) component that is qualified with respect to a certain degree of probability, which would range between 0 and 1, if quantifiable (Lyons, *ibid*, p. 800).
13. The examples with we are described as an interesting usage in the next chapter, where we cite examples from Aileen's data.
14. The gradience of 'inherency' which Leech and Coates (1980) see as operating for 'possibility' and 'ability' lead them to postulate monosemous CAN. The uses are not contextually predictable, i.e. both uses may occur with human subjects, but have to be assigned in terms of pragmatic knowledge.
15. Perkins accounts for this phenomenon in terms of the objectivity of BE ABLE TO, that is to say by virtue of the verb BE, the objectivity being a function of the fact that it is the modality itself which is actually asserted (1980, p. 112).
16. An explanatory account of the relationship between these in terms of the sincerity conditions for directives is given above at 2.2.
17. Nonfactual means that the proposition does not refer to a fact, but does not prevent the possibility of the eventual factuality at t_{act} . This is not to be confused with contrafactual which means that the factual status of the event is in conflict with the real world and will continue to be so.
18. This aspect will be brought out sharply when we contrast WILL with BE GOING TO; see also Appendix One. The reason for preferring Haegeman's analysis is because, unlike Palmer, she has given a clear meaning for WILL. Using Haegeman's approach here, does not invalidate the distinction between the different kinds of modality.
19. The volitional reading will be triggered in the following contexts, unless explicitly denied:
 - (a) declarative sentences, first person subject, especially singular
 - (b) Interrogative sentences, second person subject
 - (c) Ellipted reported speech with present orientation, third person subjects.
 I noted that the contexts for identifying subject-oriented (ability) CAN could not be so easily established.
20. Palmer (1979) calls this the 'inference' use of WILL.
21. Palmer calls this the 'power' use.
22. This reading would occur in usages we have already seen - i.e. discourse-oriented offers and undertakings.

23. Once again, contextually interpreted. Leech (ibid, p. 54-5) has articulated the distinction between the two meanings, the 'future culmination of present intention' and the 'future culmination of present cause'.
24. This is non-factive in the same way as Edinburgh may be the capital of Scotland.

Chapter Four

1. Since this form does not fit the criteria of discourse-oriented modality, it has been coded with the dynamic form.
2. It seems to me possible that this form could be used to make an offer as well.
3. This is the only example of a past unreal form that occurs in a conditional. We have evidence, reported in summary form in Appendix Two that children find it difficult to control this form until Primary Two.
4. An alternative reading is that the seven utterances relating to the bus, including BE GOING TO, WILL and would could all be seen as a 'power' use. If so, it remains the case that there is no sudden switch to a 'tentative' epistemic reading for would.
5. Douglas is a class-mate of Simon, extremely competent and very confident with it.
6. I have chosen, strictly, to reserve future reference to be coded as 'futurity' WILL. There seems to me to be no adequate test for separating out future WILL and Epistemic WILL with future reference. Palmer attempts to isolate a device for making a distinction, claiming that the progressive form would normally be given an epistemic interpretation. Compare:
John will come tomorrow.
John will be coming tomorrow.
 In a most extraordinary oversight however, he has only ten lines earlier identified John will come tomorrow, I think as epistemic. I think, given that his test is accurate, that the epistemicity of this sentence derives from I think, and that following the criterion the will is Future. This contradiction in his thinking damages the credibility we can attach to the test. However, such as it is, it might allow the analysis of Simon's utterance about drawing a scale, as epistemic.
7. Timothy's utterance occurred in the middle of a sequence of would's with habitual meaning. It's not clear whether the contiguity would have affected his choice of the form of this injunction.
8. It is possible that adults would use the 'objective' form BE ALLOWED TO in preference here.
9. The results of questions about these forms are discussed at 6.4.3. in what is designated the Actuality Tasks.
10. The example he offers is Lions can be dangerous which he says does not mean (like epistemic) 'It is possible that lions are dangerous' but 'It is possible for lions to be dangerous' in the sense 'Some lions are dangerous'.

11. I refer here specifically to examples cited above - 3:14, 4:37, 4:55-6, 5:169, 6:34 and passim in the data.
12. These forms are reminiscent of the form we reported for Janet (item 1.8) where she was attempting to draw the listener in.
13. I have derived the percentages from Well's data by excluding the frequencies of non-modal auxiliaries, and using the reduced overall total.
14. In fact it is not specially useful to make a strict equation eliminating our extra forms, since the relative proportions are still different; and beside our data would have to be shown three times, with a different comparison with Perkins and Wells; the point made would be slight.
15. Some corroboration for this picture is given in Kuczaj (1982).
16. Perhaps children are more likely to use epistemic forms when conversing with adults, as a kind of upward accommodation.
17. There is corroboration for this position in data derived from a story completion task with 5-6 year olds which is reported in Appendix II.
18. I do not think there is any special difficulty about using this form, as I have attested examples of this usage from a girl at three years and eight months.
19. I refer again to Appendix II where we have evidence to show that at least the conscious control of past unreal forms in the apodosis is extremely difficult until Primary Two (6 years).

Chapter Five

1. She assumes, at the end that we do not yet know how to write the rules that would describe this system adequately. One hopes that we are closer than we were when her study was designed.
2. The excessive regard for formalism is shown in the presentation of results (p. 48-52) where the percentages indicate the degree of conformity of the responses to the rules found in transformational grammars, regardless of the irregularity of the construction in actual usage! The data of real interest are dealt with discursively in the discussion and are much more difficult to retrieve there.
3. The P1' and P2' subjects were part of a project in which we were attempting to tap the effect of age and schooling over a range of language tasks. Considerations of space preclude the reporting of these studies in this thesis.
4. The average length of my items was 6.52 words, while Major has 6.9 and 8.27 for her negation and question items respectively. Her imitation items are longer, but in the first part of the tense sequence task the items are shorter.
5. The use of a semi-modal to form the question would be seen to be easier than with the modal, since it involves the use of a dummy primary auxiliary.

6. These are not all the regular items we report, but the only 4 on which all 5 age-groups were tested and which could therefore be considered cumulatively.
7. But the effect works in opposite directions - as a semi-modal ought to should be easier than should, therefore the effect of familiarity must be doubly strong.
8. Either should or should have are of course appropriate. The past knowledge can refer to an ongoing obligation, or a past, complete obligation.
9. On the Standard Theory (Chomsky, 1965) selectional restrictions are taken to be part of the syntactic component, but there are strong intuitive reasons for supposing them to be semantic (at least in English) and nothing is lost in our argument by supposing them to be so.
10. In any event, it was essentially only one rule which would be broken consistently.
11. Since precisely these subjects took part in the remaining three studies we will not mention the subject selection again.
12. This example in fact breaks another syntactic rule that the modal auxiliary should be the first element in the verb phrase.
13. Care was taken to make the situation described in each item as plausible as possible.
14. These are sometimes constructions which I included in the test, but there do not seem to be any order effects.
15. It is hard to see how one could have explained this in terms simple enough for even the youngest Ss to understand.
16. This was not scored for statement items, since it was supposed that maintaining declarative form was easier than maintaining the interrogative form.
17. On a small sample of Scottish English speaking adults, these two items were the only ones to ever be judged 'acceptable'.
18. It might be thought that this was the case with P5 and P7 responding exclusively with does she have to? on the test item does she must have to? but here do have to is both first and second modal and furthermore no fronting is required.
19. A difference of degree may lead to an epistemic interpretation of the first modal.

Chapter Six

1. Miller (personal communication) reports that even undergraduate students have difficulty with such tasks.
2. That is to say, if p entails q then it is not logically possible for both p to be true and ~q to be true and conversely.
3. These function as suppletive forms where the distributional properties of auxiliaries preclude their use, for example in co-occurrence, e.g. *might can versus might be able to (nonstandard forms excepted).

4. In these last three types it seems to me that Hakes is testing a particularly complex relationship whereby because of its interaction with syntactic constituents, the contrast between relational terms is neutralised. He does not analyse the nature of the synonymy nor does he try to relate the Ss' performance to their understanding of relational terms, which would be an interesting question.
5. The two parts of the test are considered separately for the older children in order that we can make an unbiased comparison with the younger children.
6. This type of response is mentioned more in passing: we approach the children's understanding of the implications of actuality more directly in the Actuality Task described at 6.4 below.
7. It seems that they have achieved near-adult competence. A small sample of five adults which I tested showed 85% of responses appropriate.
8. However, a comparison between the two youngest and three oldest groups for the first ten items shows a very similar pattern of relative difficulty.
9. Yet this construction is not foreign to them, because on another task I included an exploratory item in which I told the children about some characteristics of 'wugs', including the fact that 'they will float on water' and 'they will eat anything'. In recounting what I told them, the children showed a strong tendency to elide the will, saying simply they float on water and they eat anything.
10. Except for the items could/was able to and must/was supposed to where I used the P5 data to help make a decision. The judgements for the second testing (P5 and P7) are presented here, since the decisions were the clearest, although there is no significant difference.
11. The mean scores presented would seem to indicate as large a difference as exists between the other pairs of groups, but the data for P3 was slightly skewed by 3 high scores. On the ordinal statistic, however, this information about magnitude is lost.
12. To ensure that the judgements are made on an explicit basis the method would have had to be reversed, asking the subject what each sentence meant first and then asking for a synonymy judgement.
13. The forms are discussed in the same order as in the Paraphrase task at 6.2.2.
14. It was possible to assess even the 'indeterminate' items on the test, since it was the adequacy of the explanation relative to the judgement which was being considered. Because the explanations were given on the second testing occasion, no direct comparison with the scores at Tables 6.2.2 and 6.2.3 can be made.
15. What the proposition expressed by the sentence describes is the state of affairs that will obtain if the act in question is performed.
16. The dynamic possibility uses are also discussed below and in the task.
17. And neither does the example with will, as Palmer himself readily admits, but explains away. With will we do not seem to be dealing with implication per se; here the future seems to be explicitly predicted rather than presupposed (Lakoff, 1972).

18. We don't explore this aspect of meaning further: it is doubtless complex especially when contrastive stress enters the picture.
19. What follows is a simplification of an essentially complex picture presented by Palmer (1977, 1979, 1980).
20. One of the younger subjects, completely taken in by the plausibility of the situation, asked me how I managed to catch Morag saying these things!
21. This question was phrased so as to preclude the child's thinking I might be asking a question about the speaker's motivation - by asking simply "Why?"
22. Part of the general instructions to all my tasks were that I didn't mind if the children said "I don't know", as I was interested to find out what they didn't know as well, since the work was not a test. I also asked them to say they didn't know rather than to guess.
23. This difference is significant on the sign test ($p = 0.011$).
24. This difference is also significant on the sign test ($p = 0.002$).
25. Must₁ $z = -4.05$ $p = 0.00006$; Must₂ $z = -4.06$ $p = 0.00006$; will need $z = -3.94$ $p = 0.0001$; should $z = -1.92$ $p = 0.0548$ two-tailed test, z scores where $N > 25$.
26. Data for the other items is incomplete but shows essentially the same trends.

Chapter Seven

1. Or perhaps more naturally The children may be playing games.
2. This is not to discount the use of these expressions to draw conclusions about purely logical material.
3. Notice this distinction is not exactly parallel to the subjective-objective (explicit) distinction, since de dicto modality could be expressed by the auxiliary modals - which are subjective - used thus: It may/might/could be that ...
4. von Wright (ibid) says that dynamic modality is always de re.
5. The more philosophically defined notion which deals with questions of knowledge etc. is mentioned in the concluding remarks to this chapter.
6. Although 'performativeness' was a criterion I laid down, reported uses seem very close. 'Impersonal' permission could be added as (9), to balance (1).
7. I have heard (i) and (ii) from a child of 3,6 years. Jim Miller (personal communication) suggests (iii), perhaps for older Scottish children.
8. But not inevitably since some children gave 1(b) an undertaking reading.
9. It would not have been possible to demonstrate the "existence" of a metalinguistic capacity on our tasks, since common variance (had it been extracted) could have more obviously been attributed to the common semantic domain under investigation.

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Appendix I

Haegeman's (1980) conception of the modalised future

Haegeman would not want to consider 'futurity' as a third degree of modality. Rather, in quite specific terms, she is concerned to show that there are two distinct types of expression of future time in English. Futurity expression can be analysed in terms of a contrast between 'Imposed Future' and 'Added Future'. The first is characterised by WILL and BE GOING TO and the second by the simple present and present progressive.

Haegeman shows that to consider futurity *per se* as an opacity-creating context is inaccurate, as it is WILL and BE GOING TO only that act in this way. One example of opaqueness is a nounphrase which has no specific referent. Opacity is not a product of all futurity reference, witness the following sentence pairs.

<u>I am seeing a doctor next week</u>	}	- <u>Where does he live?</u>
<u>I see a doctor next week</u>		- <u>°Shall I ring one for you?</u>
<u>I will/shall see a doctor next week</u>	}	- <u>°Where does he live?</u>
<u>I'm going to see a doctor next week</u>		- <u>Shall I ring one for you?</u>

Another distinction between the two types of future relates to their collocation with time adverbials. The simple present and present progressive produce a definable future time reference with specific future time adverbials only, and such adverbials are obligatory. WILL and BE GOING TO optionally take an adverbial of future time, specific or non-specific.

?I'm seeing/see a doctor.
 °I'm seeing/see a doctor eventually.
I'm seeing a doctor next week.
I will/am going to see a doctor.
I will/am going to see a doctor eventually.
I'm seeing a doctor next week.

In addition to the direct object and time adverbials, other constituents containing indefinite NPs allow of an opaque reading if dominated by an Imposed Future. Thus the Imposed Future pervades the proposition in all its constituents. Added Future merely specifies the (future) time of the event. Notions such as 'conditionality', 'hypotheticality', 'opacity', 'uncertainty' are closely related to the Imposed Future. Instances are cited in which temporal adverbials carry conditional implications.

When you have put out your pipe, I will tell you about the gold rouble (SEU S. 2.11B.161).
I'll ring you from another phone when I've got time (SEU S.8.4c.6)
My government will expand educational opportunities as growing resources make this possible (SEU W.11.1B.10).

In essence Haegeman would see Imposed Future as non-factive and Added Future, because it is referential, as factive.

This picture, if accurate, would complicate the more conceptual notion of the future as being non-factive in essence. For our purposes however, we have restricted ourselves to considering only what in Haegeman's terms is 'modalised' future.

The line of argument here is impeccable, the observations astute; but I would take issue on two points. First, given that the added

future is referential, it is not clear that it simply follows that it is factive. For example, it seems possible to subordinate an added future to a non-factive predicator without any incongruity:

I think she's seeing her doctor on Friday.

I suppose she's leaving on Sunday.

Examples with the simple present are more difficult to construct. What are the implications of an apparent conflict in factivity?

Secondly, a minor objection to the term 'Imposed': its sense is very little different to that of 'Added', except the connotation of 'forced'. If this future form is said to pervade the proposition in all its constituents, it would seem to be more appropriate to term it 'intrinsic' which would seem also to accurately contrast with 'Added'.

Appendix II

A story completion task

This task was designed as part of the battery of tests which were supposed to be sensitive to slight differences in performance between children of 4½ and 5½ years. The task would certainly have been too easy for children any older than this. The aim of the task was two-fold: first as an elicitation task, to see the range of modal expressions children would produce. Secondly, this was an attempt to see whether children could discriminate the structure presented by the experimenter, and correctly complete it.

The design of the task was closely modelled on the work of Potts *et al* (1979). They observed that 3-4 year olds seldom make a diversity of errors in spontaneous production because they rarely use structures they cannot control. However, children do love filling in missing phrases of sentences in story telling. This is a possible pathway into exploring the limits of the children's performance.

Potts *et al* designed a standardised sample of 47 items covering 21 syntactic structures. They presented black and white pictures with very brief constraining story stems which had a 95% chance of eliciting the target structures. I used four of their items which they had designed to elicit modal expressions and they were more effective in eliciting target structures than nearly all of my own 40 items which only went through one modification. I did not use pictures but had the stories read on a tape-cassette. The children seemed to enjoy the task enormously and said it was "very easy". It took about ten minutes to administer.

This study is only very briefly reported, because it is of relevance to our wider questions of the thesis in relatively minor but quite specific ways. I wish to only make three observations about the results. These observations involve the responses to the items listed at the end of this section. The points I raise here are all mentioned in the body of this thesis. The results are mostly taken cumulatively as there seemed to be no age effect. There were 41 children aged 4½ - 5½ years, 25 boys and 16 girls.

Items 1-8 allowed for possible epistemic responses. The breakdown of responses is as follows -

Total number of responses	:	246	
Inappropriate responses	:	58	(23.5%)
Appropriate nonmodal responses:		122	(49.59%)
Appropriate modal responses	:	66	(26.8%)

The range of modal expressions is -

MUST	<u>must have</u>	SHOULD	MAY	<u>might</u>	<u>could</u>	MAYBE
11	1	2	1	47	4	1

The epistemic modals, where used, were used appropriately. It should be noted that 28 out of 47 uses of might were, predictably, in item 5, where might is used in the balancing structure. However, the significant favouring of using might over MAY bears note. The single instance of MAY (on item 5) was used by a very precocious child who spoke with an English accent and had an English mother. The favouring of might corroborates what has been said in our working model as well as the picture presented by the case-study children: it is not merely the tentative form of MAY, but largely replaces it.

Palmer (1979) observes that might may be used to make epistemic judgements about propositions relating to the future, but that epistemic WILL used in the same way would be very difficult to distinguish from 'futurity' WILL. For this reason I had decided to use the latter term. However, we can see how close futurity WILL comes to being epistemic in the responses on Item six, where we have 26 minor variations of If Father doesn't give it to him then perhaps his mum will give it to him. We have 7 responses with might here. What is interesting is that to say perhaps will is to paraphrase epistemic possibility. To this extent perhaps might is redundant, but the point is clear.

The third point to be briefly made involves the children's ability to complete an unreal past conditional. The item, number 8, could be completed If his mother had found him stealing biscuits she would have smacked him, given him a row, etc. There seemed to be a school effect here, because the oldest Primary Ones, unlike the youngest Primary Two's simply failed to recognise the conditional at all, and said things like ... she spanked him, ... was very angry, ... chased him. Only a couple of the ten children introduced the past habitual form would (smack him). It is only in Primary Two that we have any sign of the appropriate unreal past form would have (8/31) and greater use of would (14/31). The question arises as to whether the appropriate explanation would be in terms of the increasing difficulty in conceptualising a past (completed) event, past habitual action (which would be appropriate in a past real conditional) and then unreal past habitual.

Story items with possible epistemic completions

1. James wants to know if his father has come home yet or not. He goes outside and finds that their car is parked in front of their house, and so his father (MUST, SHOULD, could)
2. James is waiting at their front door for his friend. His mum says: "Oh dear, it's after 5.00 o'clock already. He" (MUST)
3. James was looking for his mother. He can see the light on in the kitchen so she (MUST (HAVE), might)
4. James and John climbed way up into this tree. If they fall out of this tree now (WILL, would, might)
5. [James gets pocket money from his parents every week. If he sees something he specially wants and he can't afford it, then he needs to ask his dad for more money*.] On the one hand his father might say "yes", but on the other hand he (Might, would)
6. If Father doesn't give it to him then perhaps his mother (might: would maybe)
7. James' cousin Carol is going to the Highlands. James says: "In the winter a lot of people get lost in the Highlands. You should be careful when you go there because you" (might: could)
8. [James wanted to get some cookies from the table. So he stood on his tiptoes and he stretched and he stretched but he couldn't get them*.] If his mother had caught him trying to steal biscuits she (would have)

* This constitutes the previous item.

Appendix III

The performance of the case-study children on some of the language tasks

No analysis is attempted of the Construction Changing data since no subjects were given scores. However, it is of interest to compare the children's scores for the Acceptability, Paraphrase and Synonymy tasks with the average scores for their groups: both the P3 and P5 scores are given for Aileen and Timothy as they were in P4. The scores are set out in the table below:

	P2 \bar{X} Score	Janet	Simon	P3 \bar{X} Score	P5 \bar{X} Score	Aileen	Tim
Acceptability /87	34.4	77	63	53.7 - 57.8		80	70
Paraphrase /60 or /120	31.8	41	34	81.4 - 91.7		88	84
Synonymy /16	6.8	12	11	9.11 - 11.3		15	16

Scores of the case-study children on three tasks

We refer to the younger children first. It will be clear that Janet and Simon both did extremely well on the Acceptability and Synonymy Tasks, relative to other children of the same age. They seemed to be performing at a P5 level overall but the score of 77 by Janet on the Acceptability Task was at P7 level. Janet was able to offer a few justifications on the Synonymy Task, mostly in terms of paraphrase or implication reasons. (I did not ask Simon to try this.) However, both the children seemed to find the Paraphrase Task a little more difficult: where Janet attempted the items she tended to give relatively accurate responses, whereas Simon gave some 'repeat' and 'implication', i.e. lower order responses. I was slightly surprised that Janet should have done better than Simon overall, as I thought Simon's spontaneous modal expressions constituted a slightly more sophisticated system. However, I have made mention of Simon's relative lack of self-confidence: he did not approach the tasks with the same confidence as Janet did¹.

For the P2 children I only have data for five 'necessity' forms for the Actuality Task (P2 data is for this reason not reported in Chapter Six). Here Janet is typical of her age group in only giving 'pragmatic' responses, but Simon does once refer to the linguistic form, and once to the 'necessity'. It seems slightly odd that Janet seems capable of giving mature metalinguistic responses on the Acceptability and Synonymy Tasks, that she should "regress" to pragmatic justifications here. Perhaps it is because she was not clear what precisely was required of her.

A look at the older children's scores will show that Aileen and Tim were also rather better than the P5 children at the Acceptability and Synonymy Tasks. Note however, that Janet was better than Tim, who gave some relatively immature corrections in statement form of test items which were questions. He did however score full marks on the Synonymy Task, on which I also asked Aileen and him for justifications. Aileen gave the more predictable mixed picture of paraphrase (very accurately), referring to choice or compulsion or to degree of actuality implication. However, Tim contextualised nearly all the answers -

1. See next page.

"You would say x if" For example for (a) would you like to shut the door? (b) You must shut the door he said "(a) if somebody's asking you if you will (b) it's somebody insisting you will" (cf also Ch. 7 discussion). A rough indication of the accurateness of the answers is given by "marking" them. The P5's mean score was 13.3/20. I gave Tim 14 and Aileen 18. This shows that they were well able to give justifications, which is a higher order skill than most of the others we were considering. Aileen's performance was at the level of a P7 child here.

On the Paraphrase Task, it turns out that Tim and Aileen seemed to be performing at about average level for their age. This confirms my view that this was possibly the most difficult task, since it could not be enhanced by the effects of good rapport which I think was operative. On the Actuality Task, I got data from Tim and Aileen in both P3 and P4, and so could determine whether there was any genuine development over this period. It struck me that Tim's verbal memory was good when he remembered the will vs willing contrast which I'd asked him about a year earlier. He said "I've told you what the difference is between those lots of times before!" - which he had done very accurately too. In P3 Aileen seemed most likely to give pragmatic justifications on this task, but Tim was nearly as likely to refer to "form" or "necessity" as to give a pragmatic response. However in P4 there did not seem to be any change for Tim on the five items which were repeated. Aileen on the other hand gave 3 refer to "form" responses and 1 "necessity" response, so there did seem to be a slight developmental effect with her. The two older children were more advanced than Janet and Simon who in P2 were still giving relatively immature responses.

It is very interesting that we should not have seen much difference in the modal systems spontaneously evidenced by the younger versus the older children, yet there is some evidence of a developmental effect on the language tasks. Although statistical comparisons are not possible, it did seem that the tasks which showed the differences most clearly were the Synonymy Task, where the older children were very accurate in their judgements and were able to provide reasonable justifications, and on the Actuality Task justifications. This is something which we could not have predicted from their spontaneous data alone.

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1. When I was doing the Synonymy Task with Janet at home, she got slightly impatient with the repetitiveness of the items. About half-way through she said "Carol, this is very boring!" and curled over backwards (she had been sitting on the floor) into what yogis call The Plough! From this position she seemed perfectly content to finish the task!

Appendix IVThe Observation Summaries

1. JANET

Session One (Four years and six months)

Janet (J) initially agrees to wear the microphone in a small pinafore. Observer (O) asks her to recount the events of her day at nursery, but all she manages to remember is what she had for lunch the previous day! Mother (M) is in the kitchen doing the first stages of biscuits and then Janet joins her to cut out the shapes. J is keen to make very small biscuits for a doll's picnic and then to make a Paddington shape but is persuaded to make most a normal biscuit size. They start the decorating with raisins, which they decide are too big. O goes out to check machine and J wonders why she has to behave as if O isn't there! There is a great search for the glace cherries which temporarily go missing: when they are found J is intent on eating them. J wants to move about the house but can't since she refuses to wear the pinafore any longer: so she washes up instead, splashing much water to the consternation of M who gets her to wear an apron. J slowly gets down to actually washing the dishes. J and M decide to go for a walk down to the pond and the radiomicrophone is put into Teddy's pushchair. They feed the ducks and then go for a walk round the pond: J seems fascinated at the possibility that O can still hear them if she stays behind on the bench. As their voices recede O follows them round the pond.

Session Two (Four years and nine months)

J has several friends with her; they are playing Lego but depart soon when their mother fetches them. M tries to get J to recall details of pantomime, but she can't do this very well. M offers to play board game with children. J explains rules to O, they play, then play again the "easy" way (with pictures showing to help identify words). J then sets up a number of her own constraints on playing the game (like reading with your eyes closed). After this J wants to play at dressing paper dolls, once again setting up her own rules: she puts the doll through a number of routines. Through this time she has tried to get M and O to play School with her, with little success, although she manages to get O to find a vase for flowers. So she returns to the paper doll, putting her through a number of situations. Finally they put away the doll's clothes, O helping her to press them back into the cardboard, rubbing them down firmly so they will stay. Hereafter J returns to playing Lego, once again verbally monitoring what she is doing: she is disconcerted that one of the children had broken down her large building (which she can't remember the name of). She solicits the help of M and O (who are drinking tea) to find the kinds of pieces she needs. This process continues till the end of the recording session.

Session Three (Four years and eleven months)

Janet (J) asks me (O) if she can play 'Snap', then offers an easy jigsaw. J then does it, commenting that one could look at the picture on the lid but that she doesn't have to any more. She puts it away and suggests that they do stencils. O asks to borrow sharpener but J can't find it. They need to fix the stencils to the paper, and then press on something. J volunteers to get paper-clips and has trouble

opening the polythene bag. J comments on their progress and thinks they'll need to stick the two coloured pages together at the back. O suggests J does another one, of Noddy. While doing this, they talk about J's development at reading. J comments on her colouring and then volunteers to stick the papers together. They do more of these, pausing to look at a balloon-making outfit, then applying more sellotape. J blows in microphone and O invents the 'magic' preventive of pressing her nose. J insists on whistling through microphone. J is reluctant to tidy up and tries to bribe M to do it. They make a joke with the penny. M brings in tea and biscuits, J urging them to start a game of 'Snap'. She gets impatient with the adults and goes on at length about what they might play: O protests she hasn't finished her tea. M tells off J for leaving pennies about, she yells. They start playing Snap. J protests about not being given a chance. Her morale improves as her hand increases. She tries to cheat and objects to being told off. M changes subject; J takes out new game, which only one person can play. She plays and gives O a turn next. M starts conversation and so doesn't pay the 'proper' attention: J urges her to get on with her turn.

Session Four (Five years and two months)

I (O) ask Janet (J) what she would like to do. She brings out the Spirograph: at first J does them by herself, commenting on what she is doing. She then offers to show O how to do them, and finally gets O to do one, labelling the results. J suggests we get another game out - a dice and board game; J fusses about a lost red pen before the game gets underway. After this J suggests Ludo, and asks Mother (M) to play: she doesn't arrive immediately, so J and O start. There is a discussion about the rules for starting; the game progresses J commenting on nearly every move and intended move. M brings in drinks and joins the game. J continues remarking on all the moves: the game ends (O wins) and J announces that they're to play Snakes and Ladders. O suggests J asks M to play as well: she will, but J plays for her in the meanwhile. J tries to cheat mid protestations from O. M joins game while J continues commenting, then asks M for a drink. O wins; the other two continue. J tries to avoid an inevitable move 'down' a snake to which O objects. M brings another drink through as J wins against her. J suggests another 'throw away and pickup' card game. M explains rules and all play. J uncomfortable about losing the larger proportion of her cards. M offers her hand to J if J goes out.

Session Five (Five years and four months)

Mother (M) is doing washing when I arrive, so Janet (J) and I (O) start playing card game in sitting room matching words and pictures. M says she's going shopping and J asks her to buy crisps or sweeties. J is slightly anxious that she can't tell O what to do when washing machine stops. After M leaves J goes out, without explanation. She arrives back in sitting room with pieces of cheese, offering some to O. At end of games J wants O to play 'Schools' with her: they are going to have a 'topsy-turvey' day. They do 'Letters' on the blackboard. Then O is to suggest objects for 'j'. J then offers O something to drink; while they are drinking this J tells jokes. Then she asks O to read her a story; she spills juice on her jersey before O does read to her (for approximately seven minutes). J suggests playing with

spirograph, soliciting O's help to open it. She directs O's drawing, saying O has to copy hers, in a different colour, not just on the corner of the paper, etc. J draws on O's paper, directing her to fill it in; abruptly J changes back to 'Schools'. O is reluctant to reassume role but J insists that O copies words out of a reading book; then that she reads up to a particular page; finally she questions O closely about where she (O) can do activities in workbook.

Session Six (Five years and seven months)

Janet (J), Juliette (Ju), Mother (M) and myself (O) are eating lunch. M corrects J and Ju for their manners. While eating the main course Ju spills on her dress so she borrows a dress from J, who helps her to choose it and to change into it. They return to eat their dessert. Children ask to leave table and retire to sitting-room to play, where they remain by themselves for most of the remaining time, except for briefly emerging to complain about the whining recorder or go to the toilet. The children talk about making shapes out of plasticine. J wishes Ju could stay for the night or longer as she would like to have somebody to play with. They make 'stained-glass' windows, discuss other possible shapes. There is a negotiation about how to share the plasticine. They decide to make a 'gallery' of their objects. Ju gets bored and makes suggestions about other possible activities but J rejects the request to play 'Princesses', opting rather for 'School'. They first have 'show and talks'. J puts up the register on the window despite Ju's objections. They then have 'News Time'; Ju does her reading. They have Prayers; J outlines sanctions for misbehaviour; she takes all the Primary One girls into her classroom then gives them time to choose their own activities. Ju wants J to find the scissors. J goes to toilet, from where she calls Ju as she wants to tell her something - she goes. J and Ju decide they want to play outside digging in the flower bed. J directs the digging operations, rejecting Ju's suggestions. J decides to go in and get a jersey; Ju follows, then they go back to their "hide-out", J once rejecting most of Ju's suggestions, but not being very clear about any other possibilities.

2. SIMON

Session One (Four years and three months)

The session begins with some debate about where to put the microphone on Simon; after this is resolved Simon (S) and his mother (M) go into the kitchen to bake some sponge cakes. Simon insists they need a recipe to bake with so gets a book out and opens it (on the wrong page, since he hasn't yet learned to read). Simon is entrusted with fetching the eggs, which he carries from the fridge two at a time. He also gets to unwrap the margarine, and lick the spoon after the mixture has been beaten. He gets down from his chair. Next S decides to play with his Lego (his current intense interest). His M sits and feeds his younger brother on the couch, answering S's innumerable questions about what he should build. He is building a town with roads and road signs: possibilities which preoccupy him include - how many roads to use up; where the crossroads should be, whether there should be trees on the land; where to put the double yellow lines; if

there would be enough pieces for a roundabout; what to put in the park, what side of the road to put the garden of a house, whether to carpet a house before or after he builds it, etc. M asks if S will play rugby when he grows up; S's response is that he couldn't, because he'd get hurt! The remainder of the session involves building a canal, a picnic site next to it and thinking about how close one could sit next to it without falling into it.

Session Two (Four years and six months)

Simon is playing with his Lego, deciding how to build a causeway up the side of a road. He comments on his sister Rachel being put in the pram to sleep. He talks about the possible different positions of streets and bridges in relation to each other.

O asks where S is going for his summer holiday. He goes off to find an Atlas - a children's version. S says that Carlisle shouldn't be on a Scottish map: he can read¹ most of the names of the Scottish Border towns. S then wants to draw a map of the world, so M gets out computer paper and S draws rough shapes copying the names carefully off the map. S is fascinated by the names Red Sea and Yellow Sea; he wonders whether the former is a wee bit red and thinks maybe the latter is not very deep and that you can see the sand - it must be yellow sand. M and S look up in his 'Customs' book. S is interested in the relative size of houses on small islands; he also looks for other places. S then volunteers to fetch his book about aeroplanes upstairs and asks O if she'd like to have a look at the pictures. They look at a picture of a contemporary British airport and talk about the airways bus, the fuel tanker, etc. S then wants to look at the Atlas again, afterwards drawing a map with roads. He is interested in the problem of where the boundaries of the Southern and the Atlantic oceans are. He then talks about the Arctic and its ice in summer and winter and wants to draw the North Pole on his map.

Session Three (Four years and eleven months)

For the first time Simon is reluctant to wear the radiomicrophone². S and O settle down to do some colouring in. We have to soak our felt-tipped pens as they are dried out from having no tops on. S supervises the colouring and extent of O's contribution. M is busy baking S's birthday cake, which he says is going to be a lorry. Sister Rachel climbs up to sit on the table and tries to help with colouring in; S discourages this. S would like to sharpen his wax crayon since O suggests that this would help him to keep within the lines of the sea which he's busy colouring in. He discusses Neal's near ability to walk with M, continuing colouring. Then he debates with O what to colour next, tractors, chickens? They move on to look at a party book, S reading and describing the pictures. They decide to colour in the donkey tails for S's party, and spend some time on this. S also wants to make place cards for his guests but this is discouraged. M has to write the names and then S can copy them onto the donkey tails. After this they have to cut the tails out. Simon asks if his mother would do the last two, as he thought she'd like to... but he is obviously getting very tired.

1. During the time between Sessions One and Two Simon taught himself to read, at least names on road signs and in atlases.
2. It materialised afterwards that Simon was sickening for measles at this time: this may explain why he was not especially talkative this session.

Session Four (Five years and one month)

Simon's current interest at this point is outer space; he offers to bring his book about it downstairs. He and O look at the planets of our solar system; she is asked which planet she thinks is nearest to the sun. Simon knows that Venus cannot support life since it is too hot. When asked where he thinks heaven is, he says he thinks it's somewhere about, near, Pluto! After this he fetches a map of Scotland, so that he can show O where they are going for their holiday. There is some difficulty in finding the village, he supposes it's because it's just wee. It seems that Simon finds the colouring of the sea to show specific depths rather intriguing. They try to track down their destination on Lewis by following the sea-route from Ullapool, but still find it impossible. O explains to S how the International Date line and time round the world works, and he catches onto and can immediately use the principles. He thinks the International Date line is where the world's supposed to be joined up, though! Then O explains to S how earthquakes originate, with the outer core moving independently of the inner core. S's M(other) shows O S's I.Q. test, which S calls a 'big box of fun'. After this S wants to show O his work-books from school, which he's completed and been allowed to bring home. He's keen to get her to assess which exercises are really well done.

Session Five (Five years and five months)

Simon objects to having microphone pinned on him. He goes upstairs to play with his cousin Susan. They are sticking in road signs. They talk about weightlessness in space craft and then comment at intervals about the signs they think should be put on the pages; they talk about their relationship as cousins. S wonders how fast racing cars can go. He feels he'll never be able to remember all the road signs; they talk further about the possible stickers they could stick in. S thinks their car couldn't fit through three feet; he offers to show Susan how high three feet is on the measuring board and supposes that he has grown since he last measured his height. He wonders whether he should finish the signs book but decides against it. They think about singing songs but S is soon distracted by the thought of establishing what the temperature is. After this they go outside to play on the climbing frame and decide to make a slide from it, low enough for Rachel to use as well, as she's always keen to join in physical activities. They spend some time trying out different possibilities. They try to get Rachel to go down part of the slide, remarking on a ladybird which they think is about to crawl on her. After this they lift up the slide to slot in horizontally so Rachel can go to sleep on it. S then drives round the garden in a toy car, being quite rowdy and driving into people and objects. Subsequently he claims to have put up a diversion sign since the road is "broken".

Session Six (Five years and eight months)

Simon has a friend Douglas (D) to play, from school. The two boys spend almost the entire session playing together by themselves, mostly upstairs in Simon's bedroom. They are very keen on the weather forecasts and the weather records in the newspapers: they wonder what the maximum temperature would have been, but the Sunday Standard doesn't show this. They're also keen on maps, and especially enjoy drawing their own detailed town maps, with streets, bridges, endless tenement houses, etc. D is very keen to wear S's radiomicrophone and tries to persuade

him several times to allow him to but S is adamant that he isn't to do so. Simon has a new Lego which they decide to play with but meanwhile the conversation ranges over what they'd do with S's map if he didn't like it, what different signs mean, and again, the weather reports. D says they're going to think of ideas while they build their cars; they drive them about. Then they discuss how far advanced they are at school sums and give each other sums. The boys decide they want two specific pens from D's home, so they go off and are back in a very few minutes. They return to draw sequences of houses on their town plans - they try to estimate how many houses will fit into a street; D doesn't like S poking into his work. S plans to make a scale for his map, and gets D to guess what he's going to call the park. They continue to discuss details of size and position of houses in great depth, also working out how children would get to school via the particular combination of roads and bridges. D makes one last request about wearing S's microphone, which is granted, much to his delight. The session ends with S soliciting more help from his mother with the map with Douglas diverted towards playing with little brother Neal.

3. AILEEN

Session One (Six years and nine months)

Aileen (A) and her sister Fiona (F) both are at the last stages of chickenpox but able to be up and about and play. They are building cars and trucks with Lego. A builds a shop and says there should be a customer in it; she builds a man and wants to show her mother (who is inside talking to observer) this. A gets bored with Lego and goes off to swing, with her sister close on her heels. They go on the swing together, and when F gets silly A pretends to get angry and 'threaten' her. A decides that she's had enough and persuades F to come and play in the sandpits (sandpit). They make shapes - butterflies and flowers. A persuades the adults to come and view their work, and F makes a great fuss about a worm which appears. The two girls show O A's rabbit called 'Flopsy', who is in a run on the back lawn. A describes how she got her rabbit for her birthday. When F feeds the rabbit some lettuce leaves, A reckons she won't eat them because she's had enough. They go back to play in the sandpit and A attempts to bury her feet in the sand, saying people would have great difficulty finding them. Then everybody goes to have a cup of tea, during which it begins to rain so they have to rescue the Lego. Because the adults are talking together, the two girls go through to another room to continue playing with their Lego. A continues her complex negotiations for the pieces of Lego which she wants from her sister.

Session Two (Six years and eleven months)

For the first half of the session there are a number of other children to play. While the adults sit in the dining-room the children close all the doors onto the front hall and passage and make a 'boat' from rugs and chairs. A is very much in charge: she determines where everybody is to sit. They play in the dark, and then Aileen decides that they should go to sleep: she 'wonders' who is going to be the first to wake up. Most of the children then have to leave but A points out that since one child (from nearby) can still stay, that she doesn't need to tidy yet. There follows a general conversation between the

adults and the children; after the last friend leaves A asks F if she would like a game of noughts and crosses. It seems that F is having some trouble following the rules so her mum has to explain (which is apparently unusual). They get on with the game, but M does have to arbitrate again. The children start a new game and play with A monitoring F's playing according to the rules. The father arrives home from work, and the adults talk amongst themselves while the children play.

Session Three (Seven years and three months)

M asks A to bring her bottle home for juice and she says she'll try to remember. The O is keen to go and have a look at Flopsy (the rabbit) outside, so A takes her and explains that she isn't in a wire mesh run anymore since the grass is wet (it being February). M suggests A cleans her so A has to get clean straw from the garage, but can leave Flopsy in while she changes the straw. They hurry inside again and A wants to know why F has the doctor's "stuff" out: she says it is because she's not feeling well. M, F, A and O sit round the dining-room table and have tea; F wants a second biscuit and is not allowed to have one. M and A then discuss F's eating habits - apparently she was bad about eating up her savoury if she knew there was pudding, but now always eats up at Grandma's since she has delicious puddings. A is rather bored and, wondering what to do, confesses when she finds something with a lot to do, can't always be bothered with it. However, she settles to some colouring in, and allows O to help her. She talks to her mum about her swimming lessons; she also wants an explanation for the curious colour of O's fingernails. She doesn't say much so O asks her to make a few judgements (of items she has been constructing for her tests). They discuss the colour O has used for wallpaper in a house; after a spell with little talking they change to play 'Peter Rabbit Ruskin', including F. Aileen gets to start the game, and there are numerous discussions about the rules and monitoring of F's moves.

Session Four (Seven years and five months)

It's fine weather so the two girls are playing outside. A goes inside to fetch a cardigan as she's feeling cold. When she returns she says she's going to swing, and of course, Fiona wants a turn. After this F suggests that they play in the sandpit, but A draws the line at playing mummy's and daddy's at the same time! After a short while F decides to get water to make the sand wet. A says she can't stand beetles (one just passed by) and F agrees. They then go to have a swing - F wants A to stand up, but A would prefer F to sit on her lap (so they can go together). However, it turns out that F's suggestion is carried: they change places several times. A suggests they play at 'gargling monsters', F then that it be 'burping monsters' (they make the appropriate sounds). They play a 'big sister and little sister' game - which A points out is just what they are and after this A goes to check the 'icing' on her sandpattern, then shows it to her mum. The girls play 'rafts' and then return to make 'soggy cakes'. F goes off to fetch a bucket which A claims she was about to, and therefore covets it. She offers the sieve in exchange for it. They talk about putting bits of wobble magic into their sandcakes. They discuss the ingredients of the cakes and A seems appalled that F should want her to eat hers. A worm appears and A cautions F against cutting it up, so she just traps it. After this F is keen to go inside, then sit up

on the car but A discounts these suggestions and sits singing on the swing. F brings outside sweets from M and offers A some.

Session Five (Seven years and nine months)

Aileen has her best friend Julia (J) to play: they're sitting upstairs in the study. F wants to watch them but A threatens to stop playing their board game if she insists, and won't go off and play on her own. However a little later she says Fiona can stay if she doesn't move a muscle. M brings them juice and biscuits and wonders if they are capable of having it without spilling. They decide to gargle with their juice, then A volunteers to fetch a big glass of water. After this she gives a demonstration of what they're supposed to do (lots of gargling noises). Then they sort through a large collection of marbles as they decide to build a helter-skelter: this takes them some time to sort out the right-sized marbles. The juice gets spilt. After a trial run A decides that the timing is too difficult for Fiona to understand and she dismantles it to 'make it better'. Then she suggests a game of Mousetrap, if she's able to set it up. This proves a long and complicated job for which A needs silence to think and practical co-operation. At one point she needs an elastic band and delegates Fiona for the job which she admits reluctantly is done very well. When A finds it very perplexing, she wishes her uncle was there, because he'd be able to do it. But she presses on, telling F especially to be quiet and not distract her. They finally have a few trial runs, get it to work and are able to play the game. There is some discussion about the rules and monitoring of each other's moves.

Session Six (Eight years)

Aileen decides that she is going to cut out and paste cards into her scrapbook: she asks to borrow Fiona's (F) glue. She shows O her new 'Rubik' Snake, on her mother's request, and announces that she can now make a boa constrictor. So she tries to make it but finds she can't remember: she makes a sausage dog instead. Then she returns to her cutting out, consulting M's opinion. They have had a class competition at school and A is proud that her class has won twice running. There is more discussion about whether it's possible to cut up cards with 'whole pictures' on them. A says she is going to make a list for Santa, so that he'll know what she needs, which is really the same thing as she wants! She criticises F's inability to make a triangle: coming to the end of her cards, she asks F for a game of Chinese whispers. Careful instructions are given, and the game lasts a little while. M wants balloons blown up and both children want to try - A tells F she can do it and not merely try. M's help is recruited for tying up the balloons. After this A returns to cutting out: F wants to watch Playschool but isn't allowed to (because of the recording session). Flopsy the rabbit is brought in for attention - O holds her and so A also wants a chance. It's back to the cutting and pasting again after this. Then A shows O her project with pressed wild flowers, which she did for Brownies. She asks O whether she'd like a game of Cludo.

4. TIMOTHY

Session One (Seven years)

There is some discussion at the beginning of the session about the radio-microphone. Tim (T) wants his father to get out the Action Man tower. He tells O about pussy who doesn't like going in the car, and wants details about their previous cat's behaviour in the car. After this he wants to put on a record, but finds that it is too damaged. So he goes to play with his Action Man, his brother Robin (R) with him. However, thereafter he plays by himself - no talking - so O goes up to talk to him, in his bedroom. T wants to know how long the tape will run for, then tells O about the 'duck', an amphibious car. He also tells her about Rag, the army dog who loved going in helicopters. The youngest brother Andrew (A) wakes up from his afternoon nap and T tries to persuade him to speak into the microphone, without success. The two elder boys decide to construct the model railway, while the adults drink tea in the same room. T spends a good deal of time talking about his construction. He shows O a cricket bat which is broken in two at the handle. When the track is set up there is an argument as to who is going to change the points. The train comes off the rails, much to R's distress, and T fixes it. They continue running the train until the end of the session, when the boys are intensely interested in the mechanics of the tape-recorder being switched off and packed away.

Session Two (Seven years and three months)

Tim has a friend Douglas (D) to play with him. They play a game of spaceships at battle, where the net intention is to exclude brother Robin (R) from whatever they're doing, to his considerable distress. However, with all their running about, the radio-microphone is in danger of falling out of his pocket, so O asks T to get a safety pin from his mother. The family gathers to have afternoon tea, and R is keen to have a chance of wearing the radio-microphone, but T won't co-operate. They start their game of taunting R again. But they have to go down to the study and do their homework with T's father; this doesn't take long and they're soon back to complex logistical planning of joint action designed to confuse R. They rush up and down the stairs carrying model railway tracks (as weapons) and when challenged by father T cunningly says they're using them to 'track' people. They create a 'crisis' whereby the ship is about to explode and they have urgent things to do before evacuating. Then they turn to drawing; R wants to join in, but midst general objections M removes him. Continuing their fantasy in their drawing, they talk about the necessity of keeping away from foreign spaceships. T decides that 'Bogland' is the next planet they're going to go to; he wonders whether the people there can swim. D says he supposes so, since they have bogs!

Session Three (Seven years and seven months)

Tim's brother Robin wants very badly to be recorded so O promises him a chance at the end of the session. T astutely remarks that O would probably record over it as she wouldn't want it. He needs to find something to do, rejects O's suggestion of a ball game, and they settle for Bagatelle. Since O is new to the game, he explains the rules and demonstrates: they decide that it is very difficult to score precisely what one is aiming for. They end the game with very modest scores and T asks father to get out the Monopoly since O has agreed to show him how

to play it. R would like to join them but T refuses (he is too young to understand). O has to check through the rules. T tells her a story about a man with a sucker stuck to his head, which left a mark. They choose their tokens, and T shuffle the 'Community Chest' cards. R comes and fiddles with the houses and hotels to T's chagrin. T has a bit of trouble with the money so O takes over as banker - he's not 'awfully good' at counting. The game finally starts with O explaining the rules (at great length) as they go on. T is keen to acquire all the railroad stations, and extracts rent with great glee. Their afternoon tea is brought in to them, at T's request, since he is reluctant to leave the game. By the end of the session the game is far from finished, but T is unable to find a replacement player and is deeply upset, so O promises that they can play Monopoly again on her next visit.

Session Four (Seven years and ten months)

Keeping O to her promise to play Monopoly again this session, T already has the board out when she arrives. This time it is the American Monopoly. They wait for T's friend Bob (B) to arrive and play with them; O breaks up a row between brothers Robin (R) and Andrew (A) over who is going to start a game. B arrives; he tells T about how he'd played Monopoly without the rules before, which puzzles T. Because they have limited time, O looks up the rules for a 'short game'. Mother and grandparents arrive ... they'd had a puncture in the carpark. O gives a general introduction to the game for B's benefit and after distributing a few properties to each player, they can begin playing. When he reaches Free Parking T declares he wants to buy it! He reminds O that there has to be bidding for a property if the person landing on it doesn't buy it. B has to be prevented from bidding too high. M comes in to dining-room to offer them something to drink, but they take no break, being deeply engrossed in their game. The time is spent negotiating rents, holding auction and discussing the rules, with O doing the bulk of the talking. She explains to B how she can tell where he's to be without counting, because each row has ten. Once again, T is keen to buy up all the railroads. M comes in to arrange next session with O, who says she's about to leave and will split her assets between T and B which she does, so they can continue playing.

Session Five (Eight years and one month)

Tim was keen to play a board game again, so he got out the Junior Scrabble to play it with O. He explained the few, simple rules. The family gather for afternoon tea in the same room and there is a degree of interchange between the adults. T talks about taking swimming lessons. T is the score keeper in the Scrabble game and is very keen to win (both here and the croquet later); however, there is some co-operation and helpfulness between the two when words seem difficult to come by on the board. Near the end of the game there is much swapping of letters, out of the bag. T asks for a game of Monopoly after this, but there is only half-an-hour left so he has to choose another game instead - Croquet, played on a board. Mother is to get it down from the games cupboard. T explains to his brother R (roughly) the operation of the radio microphone he's wearing; he relates to M how he did well on an arithmetic exercise at school that day - for a change, as he is usually only accurate when he works very slowly. T shows O how to play croquet: the game is over fairly quickly. It seems T is restless for

a more active game: he tries to get his brothers to move with him. They show reluctance so he asks O if she'd like a game of table-tennis, as his brothers can't join him in this.

Session Six (Eight years and four months)

Tim's mother asks what homework they have to do - they have to go over their 7 x table. M says that parents don't always know their tables either! O asks T for suggestions for games to play; he is keen to play Monopoly, but since they've played this on two occasions before O is reluctant to take up the suggestion. So T asks M for suggestions, and she produces 'Tri-ominoes', which neither has played before. While O reads the rules, T goes upstairs to fetch paper and pencil to keep the scores. They settle down to play in the playroom with the teatable as board. M brings in drinks and biscuits for them. T thinks they'll have to do only one round because they haven't got enough room to write more scores on the piece of paper. Then he does admit that they could put the scores on another piece of paper. The game is extremely absorbing and gets much more complex as more pieces are put down. T manages to complete a complex configuration and reckons he can't lose this round having gained fifty bonus points. As the pace slows and more thinking is required T says he doesn't think they'll ever finish the game. They discuss whether they'll stop the game at a particular total which either reaches first, but continue trying to use up all the Tri-ominoes. M is requested to get another sheet of paper to keep the scores on; O has to subtotal the first page. By making another complex form T gains forty more bonus points. The tri-ominoes start needing to stretch over the edge of the table, so they make a makeshift surface to expand the game. The game finishes - T wins, and is keen for another round. He wants to play it again next time - and also Monopoly!

Appendix V

List of Items on Construction-Changing Task

- 1 Pigs will eat anything.
- 2 These games would go on for ten minutes.
- 3 I can climb a climbing frame.
- 4 You can leave me out of this game.
- 5 You're able to shout loudly.
- 6 She could draw a picture of her mum.
- 7 You should be going home.
- 8 She must look after her brother.
- 9 I shall let you stay this afternoon.
- 10 You may call your friend in to play.
- 11 You may like the games we're playing.
- 12 I might come back to play with you.
- 13 I ought to be ashamed.
- 14 I would rather tell all the children.
- 15 You had better ask your teacher that question.
- 16 John dares to come.
- 17 We need to visit him at home.
- 18 I have to go home.
- 19 She's going to paint her bedroom.
- 20 You are to come to school.
- 21 You're supposed to wash your hands.

Appendix VI

List of sentences used in Paraphrase Task

(Sentences 1 - 10 also form part of Actuality Task)

- 1 I'll need to get a new blouse for my holidays.
- 2 That child will stamp in puddles.
- 3 I should've visited my granny in hospital.
- 4 I have to go into the nursery tomorrow.
- 5 Nancy said she is willing to come to my party.
- 6 I must buy a new black dress this winter.
- 7 I can ride a bicycle.
- 8 I've been going to buy a new jersey for months.
- 9 I should really write to my parents.
- 10 I've got to leave a message for my parents.
- 11 She is going to paint their bedroom.
- 12 You are to come to school.
- 13 She's supposed to wash her hands.
- 14 That game would go on for ten minutes.
- 15 Pigs will eat anything.
- 16 She must find it fun to play with me.
- 17 She needs to visit her grandpa.
- 18 She could easily draw a picture.
- 19 She may enjoy sledging in the snow.
- 20 You might find this work difficult.